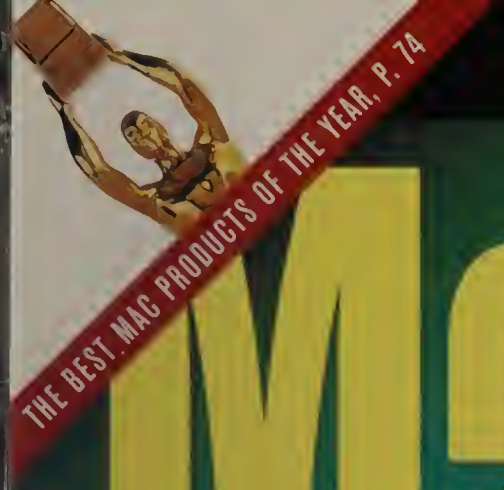


David Pogue's Secrets of Mac OS 8.5, page 82

MARCH 1999

Macworld

THE ESSENTIAL MACINTOSH® RESOURCE
www.macworld.com

EXCLUSIVE REPORT

Apple's New Colors

Apple Unleashes a Dazzling New Rainbow of G3 Macs

Plus: Microsoft Releases Major Upgrade to Internet Explorer, page 27

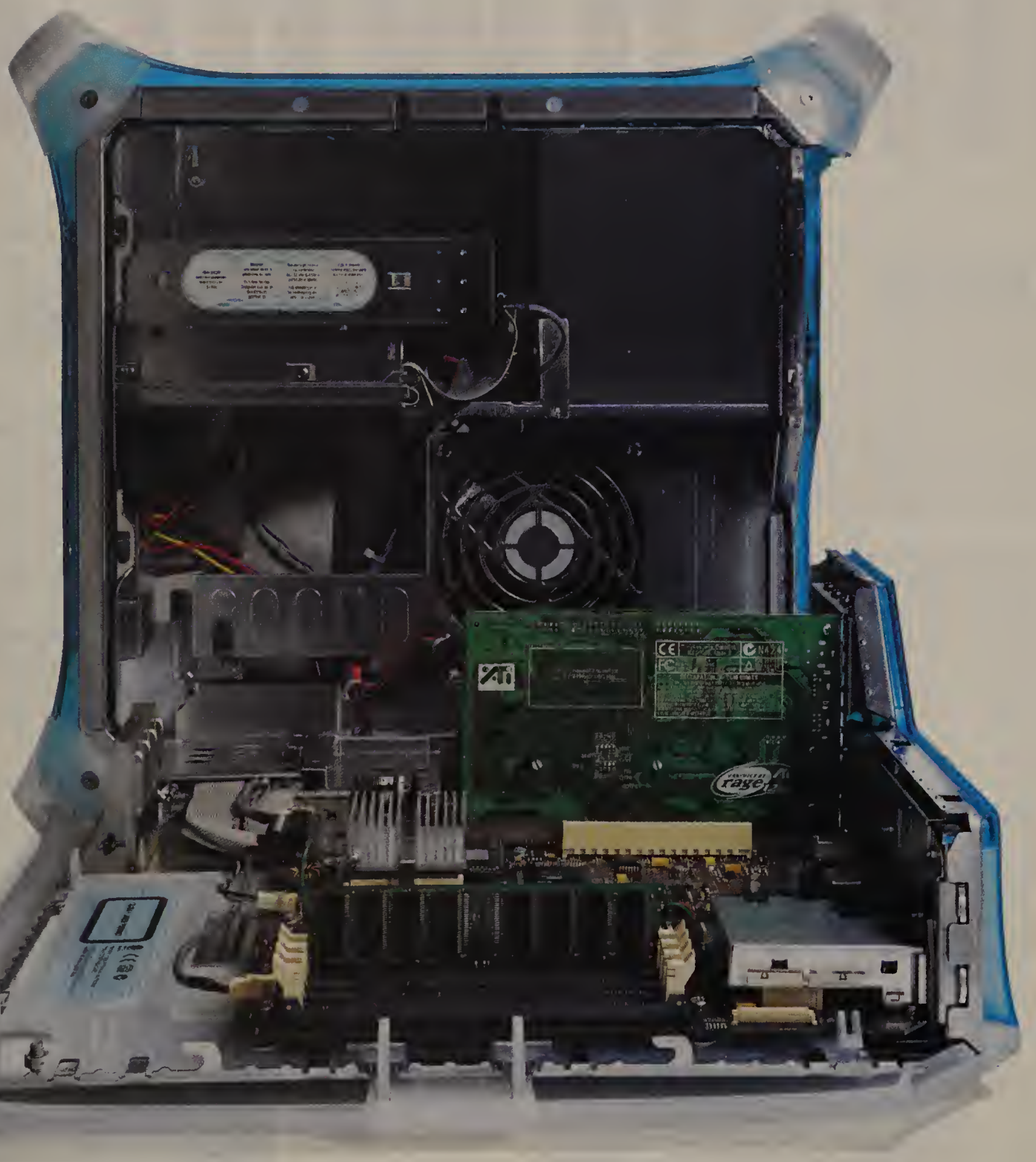
$7.99/$8.99
03>
0 70992 06924 8

The new Power Macintosh G3.

The Power Macintosh® G3 has been completely reinvented. With Pentium-crushing* PowerPC™ G3 processors up to 400MHz, the world's first integrated ATI RAGE 128 2D/3D-graphics accelerator (the new industry speed champ, faster than even the venerated Voodoo2 add-in card), up to a full gigabyte of memory and up to 100GB of internal disk storage.** The new Power Macintosh G3 gives

*Based on BYTEmark integer index processor scores. **Maximum memory and disk storage available March 1999. © 1999 Apple Computer, Inc. All rights reserved. The Apple logo, FireWire, Macintosh and Power Macintosh are registered

Now opening on a desk near you.



you more PCI slots and more ways to connect to external devices, with built-in 100Mbps Ethernet, USB and ultrafast FireWire.® It also gives you a revolutionary way to access the revolutionary technology inside – a side door that opens as easily as, well, opening a door. The new Power Mac™ G3. It's the most powerful, expandable and accessible Macintosh® ever built. Now open for your inspection at www.apple.com. Think different.™

trademarks and Power Mac and Think different are trademarks of Apple Computer, Inc. PowerPC is a trademark of IBM Corporation. Other product and company names mentioned herein may be trademarks of their respective companies.

MARCH 1999

Macworld

Incorporating MacUser

Features

Cover Story

66 iMac Envy
BY ALLYSON BATES Apple's new Power Mac G3's combine iMac style with powerful new features, including FireWire.

74 Presenting the 14th Annual Editors' Choice Awards
Macworld salutes the best products and most innovative minds of 1998—a truly newsworthy year for the Mac world.

82 On the Trail of Mac OS 8.5
BY DAVID POGUE Think you know the whole truth about Mac OS 8.5? Our sleuthing uncovers subtle and undocumented 8.5 goodies. Unleash your Mac's hidden potential with our expert tips and shortcuts.

Presenting the 14th Annual Editors' Choice Awards, page 74.

Create

Graphics

97 Paint with Vectors in Illustrator 8
BY DEKE McCLELLAND Transform text and graphics into custom Art Brushes in Illustrator 8.

Motion

101 Push the Boundaries of QuickTime VR
BY MIKE WOOLDRIDGE Add a new twist to QTVR object movies by incorporating animation.

Sound

105 Sync Different
BY CHRISTOPHER BREEN Polish live recordings while maintaining their natural sound and rhythm, using the power of MIDI.

New Mac's innovations are more than skin deep, page 66.

The details are everything when it comes to using Mac OS 8.5 effectively, page 82.

Fighting Apple ignorance at CompUSA, page 168.

News

27 Internet Explorer 4.5: Back to Basics
Microsoft's latest Web-browser upgrade lets you surf the Web with fewer mouse-clicks and keystrokes.

28 Tasty iMacs
Apple's latest iMacs not only feature a faster processor, extra storage, and a slimmed-down price but also come in five flavors.

29 Draw and Model in Photoshop?
New plug-ins add vector drawing and 3-D modeling capabilities to Adobe's venerable image-editing software.

29 Product Watch
The latest products for your Mac, including a Mac OS update and monitors from Panasonic, Miro Displays, and Optiquest.

30 USB Tablets Debut
CalComp and Wacom bring their low-cost, pressure-sensitive graphics tablets to the iMac.

Opinion

17 Letters

23 The Vision Thing
BY ANDREW GORE Reflections on Macworld Expo.

168 The Desktop Critic
BY DAVID POGUE If CompUSA is the top national Mac chain, why is its sales staff so ill-informed?

10 How to Contact Macworld

Umax's Astra 1220U flatbed scanner captures images for your iMac, page 62.

Secrets

89 Sherlock Power Searching
BY TED LANDAU Make the Internet your playground with Mac OS 8.5's potent search tool.

93 Quick Tips
BY LON POOLE Tips, tricks, and shortcuts.

ON THE COVER

Photograph by Arnold Tiosejo

Fine-tune your Sherlock searches, page 89.

Reviews

34 ♦♦♦♦ **Canvas 6**
Deneba's integrated graphics package

36 ♦♦½ **Corel Photo-Paint 8**
Image-editing software

45 ♦♦♦½ **Norton AntiVirus 5.0;**
♦♦♦ **Virex 5.9**
Virus-protection software

46 ♦♦♦½ **Buz Multimedia Producer**
Video-capture system

47 ♦♦♦♦ **Surf Express Deluxe 1.5;**
♦♦♦½ **WebDoubler 1.0**
Web proxy servers

48 ♦♦♦♦ **Kiplinger TaxCut 1998;**
♦♦♦♦½ **MacInTax Deluxe '98;**
♦♦½ **SecureTax.com**
Tax-preparation software

49 ♦♦♦♦ **Nupowr G3 1400 250/125;**
♦♦♦♦ **Nupowr G3 2400 240/120;**
♦♦♦♦ **Vpower PB 1400 G3/233**
G3 upgrade cards for PowerBooks

50 ♦♦♦♦ **Cubase VST 4.0;**
♦♦♦♦ **Logic Audio Gold 3.6;**
♦♦♦♦ **Vision DSP 4.1**
Digital recording studios

51 ♦♦♦♦ **BBEdit 5.0**
Web authoring tool

53 ♦♦♦ **OrangePC 627**
Windows compatibility card

55 ♦♦♦½ **Crescendo G3 266/1MB;**
♦♦♦♦ **Maxpowr G3 PDS 240/1MB**
G3 upgrade cards

58 ♦♦♦♦½ **Genuine Fractals Print Pro**
Image-compression Photoshop plug-in

59 ♦♦♦ **Pantone ColorReady**
Color-matching plug-in

60 ♦♦♦♦ **Netopia R2121 Dual Analog Router**
All-in-one Internet-access server

61 ♦♦♦♦ **ProCite 4.0**
Reference-database manager

62 ♦♦♦♦ **Astra 1220U**
USB scanner

62 ♦♦♦♦ **Gridz 1.2**
Strategy game

BUY YOUR MAC FROM APPLE

BUY YOUR PRINTER DIRECT FROM GCC.

iMac Compatible

GCC TECHNOLOGIES

HERE'S WHY...

We're GCC Technologies, and our printers are sold direct against some of the most famous names in the computer industry. This creates a buying opportunity for those who understand a basic principle of free enterprise: Selling direct is better for the manufacturer and buying direct is better for the customer.

Therefore, we sell our printers direct, eliminating many prosperous middlemen, and lowering your costs.

We also provide direct technical support, eliminating other middlemen who can't solve your problems. And we are compassionate hand-holders. We offer unlimited free technical support, not just on business days, but on Saturdays too – throughout the one-year warranty period. If during that period you have a problem that our technical support people can't solve, our Platinum Exchange program guarantees you a replacement printer by the next business day.

We invite you to buy your next printer direct from GCC and join our growing family of satisfied customers. All GCC printers come with an unconditional thirty-day money-back guarantee.

For complete details, call the 800 number below. And, for the record, yes, our printers have wonderful technology too. It's just that you don't have to pay extra for it.

ELITE 12 Series

12 pages per minute
Maximum Print Area: 8.5" x 14"
Letter/A4, legal, envelope
250-sheet Universal Tray
PostScript® Level 2 compatible, PCL 5
35 PostScript fonts, 15 PCL fonts,
45 downloadable fonts
RAM expandable to 64 MB
1st year Platinum Exchange Warranty
EtherTalk®, LocalTalk®, TCP/IP
Ethernet (10 BaseT), Bi-directional Parallel
2nd Paper Feeder*
(Includes 500-sheet Universal Tray) Add $ 299

ELITE 12/600 $999

600 x 600 dpi resolution
8 MB RAM expandable to 64 MB
2nd year Platinum Exchange Add $ 99
Business Lease $50 Month/24 months**

ELITE 1212 $1199

1200 x 1200 dpi resolution
16 MB RAM expandable to 64 MB
2nd year Platinum Exchange Add $119
Business Lease $59 Month/24 months**

ELITE XL 20 Series

20 pages per minute
Maximum Print Area: 12.75" x 35.25"
Letter/A4, tabloid/A3, legal, envelope, poster
500-sheet Universal Tray
PostScript® Level 2 compatible, PCL 5
35 PostScript fonts, 15 PCL fonts,
250 downloadable fonts
RAM expandable to 64 MB
1st year Platinum Exchange Warranty
EtherTalk®, LocalTalk®, NetWare™, TCP/IP
Ethernet (10 BaseT, AAUI), Bi-directional Parallel
2nd or 3rd Paper Feeder*
(Includes 500-sheet Universal Tray) Add $ 299

ELITE XL 20/600 $1799

600 x 600 dpi resolution
16 MB RAM expandable to 64 MB
2nd year Platinum Exchange Add $179
Business Lease $63 Month/36 months**

ELITE XL 20/800 $1999

800 x 800 dpi resolution
24 MB RAM expandable to 64 MB
2nd year Platinum Exchange Add $199
Business Lease $69 Month/36 months**

ELITE XL 20/1200 $2199

1200 x 1200 dpi resolution
64 MB RAM installed
2nd year Platinum Exchange Add $219
Business Lease $76 Month/36 months**

ELITE XL 8 Series

8 pages per minute
Maximum Print Area: 11" x 17"
Letter/A4, tabloid/A3, legal, envelope
250-sheet Universal Tray
PostScript® Level 2 compatible, PCL 5
35 PostScript fonts, 15 PCL fonts,
45 downloadable fonts
RAM expandable to 64 MB
1st year Platinum Exchange Warranty
EtherTalk®, LocalTalk®, TCP/IP
Ethernet (10 BaseT,10 Base2), Parallel
2nd Paper Feeder*
(Includes 250-sheet Universal Tray) Add $ 319
(Includes 500-sheet Letter/A4 Tray) Add $ 419

ELITE XL 608 LC $1399

600 x 600 dpi resolution
8 MB RAM expandable to 64 MB
2nd year Platinum Exchange Add $139
Business Lease $50 Month/36 months**

*The Elite 12/600, Elite 1212, and the Elite XL 608 LC support ane oddiianal paper feeder. The Elite XL 20/600, Elite XL 20/800, and the Elite XL 20/1200 support twa additianal trays. **Leasing pravided by independont leasing companies ta quolified customers. Leose payments bosed an 24-month and 36-manth terms. Lease terms subject ta change withaut notice or obligatian.

GCC Technologies is o registered trodemork of GCC Technalogies, Inc. Elite 12/600, Elite 1212, Elite XL 608 LC, Elite XL 20/600, Elite XL 20/800 and the Elite XL 20/1200 ore trodemarks of GCC Technalogies, Inc. All ather trademarks ar registered trademarks are trademarks af their respective campanies.

To order call 1-800-422-7777, or visit our web site, www.gcctech.com

Keycode 903MWS

ANTHRO®

Take Control of Your Space!

Configure your AnthroCart to fit your space and hardware. We'll be happy to work with you so you have just the right solution. Call us!

LIFETIME WARRANTY • DOZENS OF SHAPES AND SIZES • OVER 75 ACCESSORIES • TOUGH AS NAILS

CALL FOR A FREE CATALOG!

800-325-3841

6:00 AM to 6:00 PM PST, M–F

ANTHRO®

ANTHRO CORPORATION®
TECHNOLOGY FURNITURE®
TUALATIN, OR 97062
FAX: 800-325-0045
JAPAN: 03 (TOKYO)-3947-2735
www.anthro.com

Lifetime Warranty. Dozens of shapes and sizes, over 75 accessories. Since 1984. Prices from $299. GSA contract. Available for OEM applications.

Macworld

EDITOR IN CHIEF	Andrew Gore
EXECUTIVE ASSISTANT	Cynthia A. McDonald

EDITORIAL

EDITOR	Michael Penwarden
SENIOR EDITOR/NEWS AND REVIEWS	Stephen Beale
SENIOR EDITOR/DEPARTMENTS	Nancy Peterson
SENIOR EDITOR/FEATURES	Jason Snell
SENIOR ASSOCIATE EDITORS	Allyson Bates, Linda Comer, Scholle Sawyer
ASSOCIATE EDITOR	Brooke C. Wheeler
ASSISTANT EDITOR	Michael Gowan

CONTRIBUTING EDITORS

David Biedny, Henry Bortman, Christopher Breen, Bruce Fraser, Ted Landau, Deke McClelland, Rik Myslewski, David Pogue, Lon Poole, Franklin N. Tessler

INTERNATIONAL EDITORS

Steven Noble, Australia; Bernard Le Du, France; Andreas Borchert, Germany; Enrico Lotti, Italy; Yoshio Moriya, Japan; Tomasz Bitner, Poland; Daniel de Blas, Spain; Lennart Håkansson, Sweden; Fred Jame, Taiwan; Bahattin Apak, Turkey; Simon Jary, United Kingdom

LAB

LAB DIRECTOR	Jeff Pittelkau
ASSOCIATE LAB DIRECTOR	Kristina De Nike
SENIOR LAB ANALYSTS	Jeffy K. Milstead, Kevin Mitchell
ASSOCIATE LAB ANALYST	Gil Loyola
INVENTORY COORDINATOR	Ulyssis Bravo

COPY EDIT

MANAGING EDITOR	Claire H. Breen
ASSISTANT MANAGING EDITOR	Paul-Michael King
COPY CHIEF	Jon Zobenica
SENIOR COPY EDITOR	Elissa Rabellino

ART AND DESIGN

DESIGN DIRECTOR	Eleanor Leishman
ART DIRECTOR	Sylvia Chevrier
ASSOCIATE DESIGNERS	Martha Katt, Michael Rattary
DESIGN ASSOCIATES	Jackie Goodman, Jonathan Woolson

ONLINE

VICE PRESIDENT, SALES, & PUBLISHER	Matt Sweeney
DIRECTOR OF CONTENT	Matthew Rothenberg
SENIOR ONLINE EDITOR	Philip W. Dyer
CONTENT ENGINEER	Jeff Cheney
ASSISTANT CONTENT ENGINEER	Jessica Graves
DIRECTOR, BUSINESS DEVELOPMENT FOR ONLINE	Nicholas Harvey
ACCOUNT MANAGER	Diana Berry
ONLINE TRAFFIC MANAGER	Nicole Nestel

Great performance...easy to recognize, hard to duplicate.

21" 110 khz
$999 ESP

Winning as many awards as we have sets iiyama apart from the competition. And for good reason. All iiyama monitors, including our newest line of 21" CRTs are engineered to meet the highest standards of quality and performance, allowing the user to run the monitor at its highest specified performance and refresh rate.

Consistent quality is maintained because iiyama monitors come from our ISO 9001 certified factories in Japan. We don't outsource or OEM our monitors, so we can always be 100% certain that our high standards are met.

So for high performance at an unbeatable price... get the monitor that can't be duplicated.

	CRT Monitor Model/ Viewable Area	TCO	Dot Pitch/ CRT Type	Max. Horizontal Scan Rate	Max. Resolution	Est. Street Price
21"	**VisionMaster Pro 502** (19.5" VIS)	TCO '95	0.28mm/AG	110khz	1800 x 1440@74hz	$999
	VisionMaster Pro 501 (19.5" VIS)	TCO '95	0.28mm/AG	96khz	1600 x 1200@75hz	$939
	VisionMaster 502 (19.5" VIS)	TCO '95	0.27mm/dp	110khz	1800 x 1440@74hz	$999
	VisionMaster 501 (19.5" VIS)	TCO '95	0.27mm/dp	96khz	1600 x 1200@75hz	$939
19"	**VisionMaster Pro 450** (18.0" VIS)	TCO '95	0.25mm/AG	102khz	1600 x 1200@80hz	$699
	VisionMaster 450 (18.0" VIS)	TCO '95	0.26mm/dp	102khz	1600 x 1200@80hz	$659
17"	**VisionMaster Pro 400** (16.0" VIS)	TCO '95	0.25mm/AG	96khz	1600 x 1200@75hz	$498
	VisionMaster 400 (16.0" VIS)	TCO '95	0.26mm/dp	96khz	1600 x 1200@75hz	$459
	S702GT (16.0" VIS)	TCO '95	0.28mm/dp	96khz	1280 x 1024@85hz	$369
15"	**VisionMaster 350** (13.7" VIS)	MPR-II	0.28mm/dp	69khz	1280 x 1024@65hz	$239

	TFT/LCD Monitor Model	TCO	Pixel Pitch	Max. Horizontal Scan Rate	Max. Resolution	Est. Street Price
14.1"	**Pro Lite 36a** (with OSD)	TCO '95	0.279mm	62.5khz	1024 x 768@75hz	$899
	Pro Lite 36b (80° Viewing Angle)	TCO '95	0.279mm	62.5khz	1024 x 768@75hz	$1,129
15"	**Pro Lite 38a** (with OSD)	TCO '95	0.279mm	62.5khz	1024 x 768@75hz	$1,129
	Pro Lite 38b (with OSD, USB & Speaker)	TCO '95	0.279mm	62.5khz	1024 x 768@75hz	$1,179

PC WORLD 1998 WORLD CLASS
1998 VisionMaster 450

PC MAGAZINE Best of 1997
January 6, 1998 VisionMaster Pro 17

ECOLOGY • ENERGY ERGONOMICS • EMISSIONS TCO

iiyama

3 YEAR WARRANTY

RSVP RELIABILITY SERVICE VALUE PERFORMANCE
ISO 9001

For the name of your local dealer call: (800) 394-4335 • www.iiyama.com

© 1998 iiyama North America, Inc. All rights reserved. iiyama, the iiyama logo, and the RSVP logo are trademarks of iiyama North America, Inc. All other trademarks are the properties of their respective owners.
8 hours a day/5 days a week/50 weeks a year. MTBF excludes CRT life, which may vary from model to model. Prices and specifications are valid as of 10/01/98. Estimated Street Price is shown, actual price may vary.
Prices do not include shipping, handling and any applicable taxes. Specifications are subject to change without notice. As an Energy Star™ Partner, iiyama has determined that this product meets the Energy Star™ Guidelines for energy efficiency.
For more information, please write us at 575 Anton Blvd., Suite 590, Costa Mesa, CA 92626. 800/394-4335, 714/437-5111; Fax:714/437-5982; Home Page: www.iiyama.com

PC Computing
May 1998 VisionMaster 450

CADALYST LABS 1998
Perfect Five-Star Rating
January 1998 VisionMaster 450 VisionMaster Pro 500

ComputerLife
Perfect Five-Star Rating
November 1997 VisionMaster Pro 17

Performance & Technical Excellence
March 1997 VisionMaster Pro 21

MW EDITORS CHOICE
Six Time Winner
Jan 1997, Feb 1997, March 1997, April 1997, May 1997, June 1997
VisionMaster Pro 21

PC MAGAZINE EDITORS CHOICE
October 7, 1997 VisionMaster Pro 17

CADALYST LABS 4½ STAR RATING 1998
March 1997 VisionMaster Pro 21

PC WORLD
Twelve Time Winner
July 1996, Jan 1997, March 1997, July 1997, Sept 1997, Jan 1998, March 1998, May 1998, July 1998, Sept. 1998
VisionMaster Pro 17
April 1998, August 1998
VisionMaster 450

Choose 39 at www.macworld.com/getinfo

Project Scheduling Made Easy!

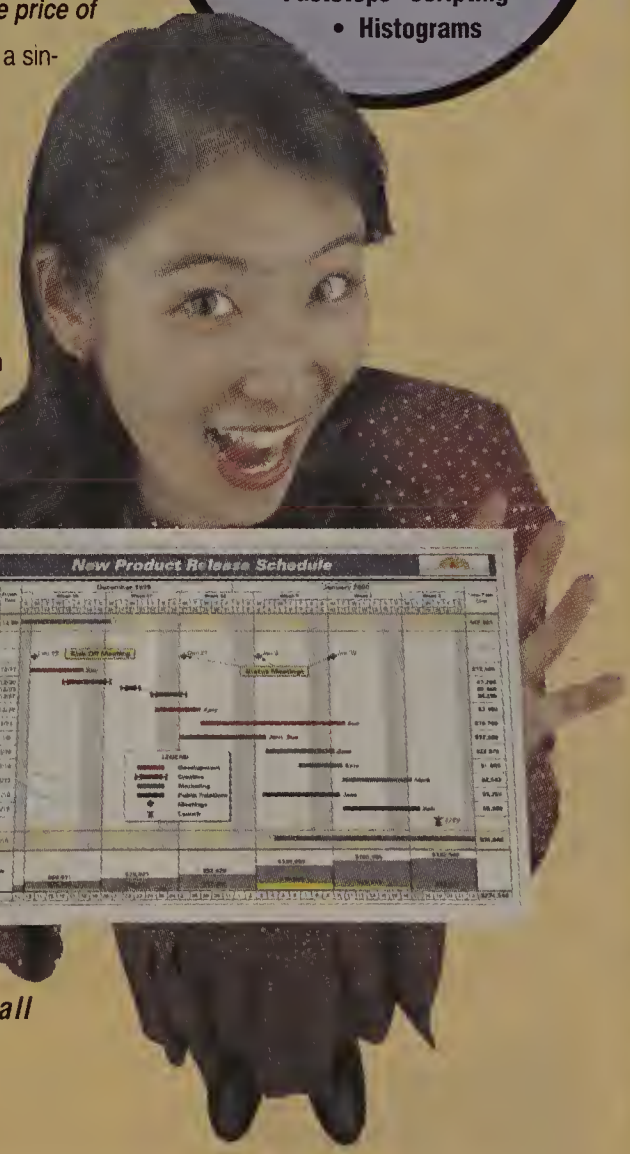
DON'T TELL MY BOSS

I'm not a project management expert, but everyone thinks I am. Most of my time is spent completing tasks, so I need a scheduling tool that's easy, fast, and flexible.

FastTrack Schedule 6.0 fills the bill. It keeps me organized and in control displaying all my project details in rich, colorful timelines. FastTrack Schedule provides just the right amount of power because it's more sophisticated than day-planners, but ***easier to use and half the price of traditional, high-end project managers.*** In a single schedule, I can outline multiple projects, make assignments, track cash flows, set-up dependencies—even add graphics.

NEW Version 6.0 Time Capture

- SpellChecker
- Hyperlinks
- ExpressDate™ Pop-up Calendar
- Real-Time Internet Collaboration
- FastSteps™ Scripting
- Histograms

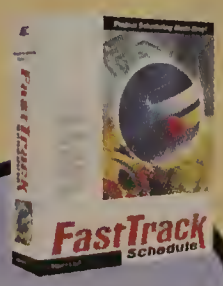


The presentation-quality schedules clearly illustrate project objectives and deadlines keeping everyone up-to-date. Coworkers can update tasks across our Intranet, collaborate remotely, or use a FastSteps™ script to automatically export schedules to our client's web site.

Whether I use it once a week or every day, FastTrack Schedule makes project scheduling easy.

For the free Demo CD, more info, or to place an order call

800-450-1982.



Try it today!

Download the free demo

FastTrack Schedule™ Version 6.0

AEC SOFTWARE

Schedule Tomorrow's Success Today.™

Choose 203 at www.macworld.com/getinfo

Macworld

PRESIDENT AND CEO	Colin Crawford
ASSISTANT TO THE CEO	Sharon Sanderson
CHIEF FINANCIAL OFFICER	Stephen Daniels
BUSINESS MANAGER	Eos de Feminis
ACCOUNTING COORDINATOR	Ronda Bittner
IT ASSISTANT	Christian Semmel
DIRECTOR OF HUMAN RESOURCES	Sue Murphy
HUMAN RESOURCES COORDINATOR	Ada Yim

DISPLAY ADVERTISING SALES

VICE PRESIDENT, SALES, & PUBLISHER	Matt Sweeney
ASSOCIATE PUBLISHER	Steve Plevin (415/243-3509)
SALES COORDINATOR	Karla Kyrias (415/278-8542)
SALES ASSISTANT	Bryan Farnsworth (415/243-3577)
NATIONAL ACCOUNTS MANAGER	Jessica Ross (415/243-3583)
NATIONAL ACCOUNTS MANAGER	Sara Culley (970/327-4499)
ACCOUNT EXECUTIVE	Margaret Level Green (415/243-3582)
EASTERN ADVERTISING DIRECTOR	Cynthia Ramsey (973/243-1197)
NATIONAL ACCOUNTS MANAGER	Paul Bonarrigo (508/533-4020)
ACCOUNT EXECUTIVE	Jo Zottarelli (516/277-4134)
SHOPPER ACCOUNT MANAGER	Niki Stranz (415/243-3664)
SHOPPER ACCOUNT MANAGER	Carol Johnstone (415/243-3691)
SHOPPER ADMINISTRATIVE ASSISTANT	Alissa Mach (415/243-3628)

RESEARCH

SENIOR RESEARCH ANALYST	Phillip Hibbert

MARKETING

VICE PRESIDENT, MARKETING	Vickie Welch
MARKETING MANAGER	Francesca Koe
TRADE SHOW/EVENTS COORDINATOR	Nancy Galanty

MACWORLD GLOBAL PRODUCT SUPPORT CENTER

COORDINATOR	Sharon Sanderson (415/243-3640)

PRODUCTION

VICE PRESIDENT OF MANUFACTURING	Anne Foley
PRODUCTION DIRECTOR	Cynthia Neustadt
MANUFACTURING TECHNICAL DIRECTOR	Clayton Haberman
DIGITAL AD COORDINATOR	Mac Scott
AD SALES COORDINATOR	Rick Sandoval

Macworld is a publication of Mac Publishing, L.L.C. *Macworld* is an independent journal not affiliated with Apple Computer, Inc. *Macworld, MacUser, MacWeek, Macworld Interactive, Macworld Shopper, MW, MW Lab, MW Shopper, The Desktop Critic, Expert Graphics, Quick Tips, Star Ratings, Buyers' Tools, Streetwise Shopper,* and *Conspicuous Consumer* are registered trademarks of Mac Publishing, L.L.C. *Apple,* the Apple logo, *Mac,* and *Macintosh* are registered trademarks, and *MacLetter* and *PowerBook* are trademarks, of Apple Computer, Inc. Printed in the United States of America.

Copyright © 1999 Mac Publishing, L.L.C. All rights reserved

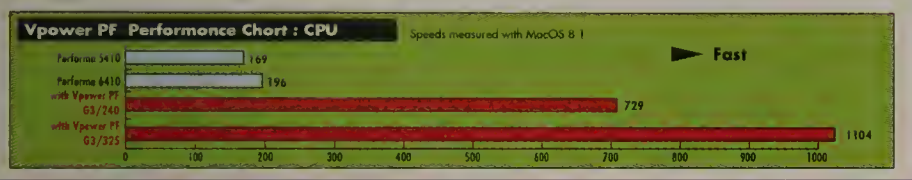
Vimage® CORPORATION

G3 acceleration for your Mac!

Apple 54, 55, 64, 65 20th Anniversary Super Mac C500

A Worldwide Exclusive

Owners of the 54xx, 55xx, 64xx, 65xx and 20th Anniversary Macs are no longer left out in the cold! Transform your computer into a G3 machine simply by plugging the Vpower PF G3/240 card into its Level 2 cache slot. Your computer is a big investment. Why let it depreciate when Vpower can keep you at the forefront of Macintosh CPU technology?



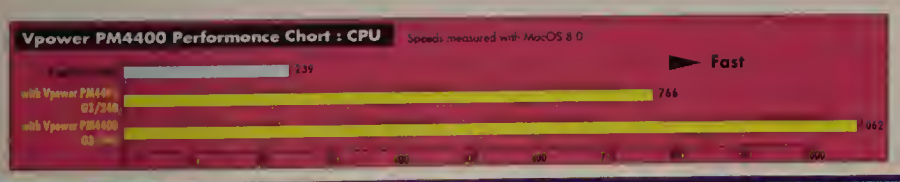
PowerBook 1400

Make your PowerBook *work* for you with the Vpower PB 1400 G3/233. Scorching speed and extra-low power consumption combine to ensure that you'll be at your most productive, whether at home or on the road.

Power Mac 4400 StarMax 3000 & 4000

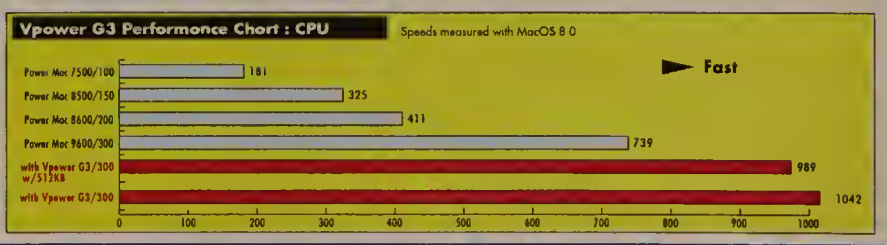
World's First PM 4400, StarMax 3000/4000 Upgrade

The word is out: Vimage is the industry leader when it comes to producing innovative upgrade solutions for "dead-end" machines. Simple, plug-and-play installation allows you to enjoy all the benefits of a G3 machine in just minutes. There's never been a better time to take your computer to the next level of performance.



PCI Power Mac

Bring your Power Macintosh into the G3 generation with a Vpower G3 upgrade card, and enjoy the best price-to-performance ratio available on the market!



Product	Compatible Machine	CPU	Cache	Price
Vpower G3/300	Power Mac 7300,7350,7500,7600,8500,8550,8600,9500,9600,9650 UMAX S900,S910	G3/300MHz	1MB/150MHz	$ 798
Vpower G3/233	Power Mac 7300,7350,7500,7600,8500,8550,8600,9500 UMAX S900,S910	G3/233MHz	512KB/117MHz	$ 389
[illegible]	Power Book 1400	G3/233MHz	512KB/117MHz	$ 499
Vpower PM 4400 G3/240	Power Mac 4400 Motorola Star Max 3000, 4000	G3/240MHz	512KB/120MHz	$ 499
Vpower PM 4400 G3/300	Power Mac 4400 Motorola Star Max 3000, 4000	G3/300MHz	1MB/150MHz	$ 899
Vpower PF G3/240	Power Macintosh/Performa 54xx, 55xx, 64xx, 65xx, 20th Anniversary Super Mac C500	G3/240MHz	512KB/120MHz	$ 499

•The PowerPC name and the PowerPC logotype are trademarks of International Business Machines Corporation, used under license therefrom.

To Order Call Toll Free:

1-877-4VIMAGE (8462443)

Mon-Fri 8AM to 5PM (PST) or FAX:(310)225-3989

Vimage is a registered trademark of Interware Co.,Ltd. All other trademarks and registered trademarks are the property of their respective owners

All major credit cards accepted, no surcharge. Government, Corporate and Educational P.O.s welcome. Vimage products are covered by a two-year limited warranty. Prices are subject to change without notice. Returns require authorization and are subject to a restocking fee. Vpower is a trademark of Vimage. ©1998 Vimage Corporation

For the newest information on Vimage products, check out www.vimagestore.com

Choose 44 at www.macworld.com/getinfo

★ Ranked TOP 1% of 1998 Software Reviewed ★

Macworld

$49 or less! available everywhere

Sometimes bad things do happen to good computers. Your screen freezes. (Along with the blood in your veins.) **Or your 6-months-and-almost-done project is accidentally thrown out with the trash.** (Hello?) **Or files are mysteriously "corrupted."** I just don't have the time to reconstruct my docs, files, bookmarks, fonts, preferences, financials, reports, and e-mail. Do you?

My hard drive just crashed.

Retrospect Express provides automatic protection for everything on your Mac at a no-brainer price. **It's never been easier** to back up your hard drive (and everything on it) to **Zip, CD-R, Jaz,** or even to the **Internet.** With small and home offices among those hardest hit when disaster strikes, the laws of probability guarantee that sooner or later, your number will come up. But for **less than $49, Retrospect Express** guarantees that you'll be smiling when it does.

www.dantz.com/saveyourworld

dantz

Save Your World.™

Choose 26 at www.macworld.com/getinfo

Macworld

HOW TO CONTACT MACWORLD

Subscription Services

Phone	800/627-2247 or
	303/665-8930, United States only
	303/604-7445, outside the United States
U.S. Mail	Macworld Subscription Services
	P.O. Box 54529, Boulder, CO 80322-4529
World Wide Web	www.zdnet.com/zdsubs/macworld/service

Subscription Rates

The one-year (12-issue) subscription rate is $34.97 in the United States and $54.97 in Canada and Mexico; for all other countries, send either $54.97 for surface mail or $104.97 for air mail. The two-year U.S. rate is $59.97, and the three-year rate is $79.97. Checks must be made payable in U.S. currency to *Macworld*. Please allow 6 to 8 weeks to receive your first issue.

Back Issues of Macworld

Back issues (subject to availability) are $8 per issue for U.S. delivery ($12 outside the United States); prepayment in U.S. currency to *Macworld* is required. Send check or money order to Back Issues Department, Ziff-Davis Inc., P.O. Box 53131, Boulder, CO 80322-3131.

Reprints and Permissions

You must have permission before reproducing any material from *Macworld*. Write to *Macworld*, Reprints and Permissions, 301 Howard St., 16th Fl., San Francisco, CA 94105; include a phone number. To order reprints of your company's editorial coverage, call Reprint Services at 800/217-7874 or 651/582-3800; fax 651/633-1862.

Newsstand CD-ROM

Readers can obtain newsstand CD-ROMs by mailing a check for $3.95 (includes shipping and handling) for each CD to *Macworld* SCS, One Park Avenue, 5th Fl., New York, NY 10016. Please state CD title and issue. Make sure to include shipping name and mailing address. Subscribers interested in receiving CD-ROMs monthly should call 303/665-8930 for more information.

Mailing Lists

We periodically make lists of our customers available to mailers of goods and services that may interest you. If you do not wish to receive such mailings, please write to us and include a copy of your mailing label.

Macworld on Microfilm

Macworld is available on microfilm and microfiche from UMI, 300 N. Zeeb Rd., Ann Arbor, MI 48106-1346; 313/761-4700.

Macworld Editorial

The editors of *Macworld* welcome your tips, compliments, or complaints. Stories and product reviews from past issues can be located at www.macworld.com. We are unfortunately unable to look up stories from past issues; recommend products; or diagnose your Macintosh problems by phone, e-mail, or fax. Contact Apple toll-free at 800/538-9696, ext. 500, for information on user groups in your area.

Our offices are located at 301 Howard St., 16th Fl., San Francisco, CA 94105; 415/243-0505, fax 415/442-0766.

LETTERS TO THE EDITOR Direct all comments and suggestions regarding any aspect of the magazine to letters@macworld.com. Due to the high volume of mail received, we can't respond personally to each letter. We reserve the right to edit all submissions. All letters published in *Macworld* or Macworld Online become the property of *Macworld*.

QUICK TIPS Send your questions or tips on how to use Mac computers, peripherals, or software to *Macworld, Quick Tips*, 301 Howard St., 16th Fl., San Francisco, CA 94105; fax 415/442-0766; e-mail quicktips@macworld.com. Please include your name, address, and telephone number.

BPA INTERNATIONAL

If you want to survive, you have to be faster and smarter than your predators. Our newest line of prepress and printer products offers the quickest, smartest way to get jobs from your computer to final output.

The XANTÉ® Accel-a-Writer® 3G:

- Up to 2400 x 2400 dpi and line screens up to 150 lpi
- Densitometer support for grayscale calibration
- Registration and dimensional accuracy with patented X-ACT™ Technology
- A capacity for full-bleed graphics on oversized output up to 13" x 35.5"
- The perfect solution for film, camera-ready art and proofing
- Up to 20 pages-per-minute
- Process film generated on the Accel-a-Writer 3G directly on your desktop using XANTÉ's FilmStar™ 2

Call today for more information on the XANTÉ Accel-a-Writer 3G and FilmStar 2.

Adobe PostScript 3

XANTÉ

PREPRESS INNOVATIONS.

1-800-926-8839, ext. 2160
Fax: 334-342-3345
www.xante.com

©1998 XANTÉ CORPORATION. XANTÉ, Accel-a-Writer, X-ACT, and FilmStar are trademarks or registered trademarks of XANTÉ CORPORATION. Adobe, PostScript, PostScript 3, and the PostScript logo are trademarks of Adobe Systems Incorporated. Other brands and product names are trademarks or registered trademarks of their respective holders. XANTÉ CORPORATION, 4621 Springhill Avenue, Mobile, AL 36608. Tel: 334-342-4840, fax: 334-342-3345.

Choose 112 at www.macworld.com/getinfo

www.lacie.com/mwtx.htm LaCie TX-8000 and the LaCie logo are trademarks of LaCie, Ltd ©1998 LaCie, Ltd All rights reserved.

ASTRONOMICAL.

The capacity of the LaCie TX-8000™ is simply colossal. It can store up to one quarter terabyte in eight RAID accelerated drives with either Ultra2

SCSI or Fibre Channel host controllers. And four scaleable towers combine to total one terabyte (1000 GB). So, go ahead, think as big as you please.

LACIE Made for ideas.

Make your websites sticky.

©1999 Macromedia, Inc. All rights reserved. Macromedia is a registered trademark and the Macromedia logo is a trademark of Macromedia, Inc.

Macromedia. It makes your
websites more attractive,
more memorable, more popular.
More alluring.
Apply some to your website.
www.macromedia.com

add life to the web

macromedia®

Zip! For a faster tax refund click send

IRS *e-file* is today's way to file your income tax—and get your refund back in half the usual time. Even faster with Direct Deposit!

If you prepare your tax return on your PC or Mac, take the next step and *file* it electronically too.

Click! IRS *e-file* is fast, simple, accurate and secure. And you can e-file 24 hours a day, 7 days a week.

Do you owe more tax? You can still e-file your return now, get fast proof of acceptance from the IRS, but then wait until April 15th to make the payment. One option allows you to authorize a withdrawal from your bank account on the date you choose, up to April 15th. Another option allows you to pay with your credit card.

Any questions? Check the IRS Web site at **www.irs.ustreas.gov** or your tax preparation software.

IRS *e-file.* It's the fastest way to get a tax refund.

IRS e-file

CLICK. ZIP.
FAST ROUND TRIP.

The Internal Revenue Service *Working to put service first*

MARCH 1999

Letters

You Call That Portable?

YOU AND APPLE ARE COMPLETELY out of touch with reality. I don't think the PowerBook G3/300 deserves a five-mouse rating, because the philosophy behind this and similar machines is sheer lunacy (*Reviews*, December 1998). Most of the stuff on these heavy, cumbersome, and short-lived units is never used in transit. Apple should push in the other direction: offer a low-end portable (2 pounds or less with 24-hour battery life) and put on only e-mail, calendar, spreadsheet, and word processing apps. That's what we professionals on the move could use. No more of these $5K toys you throw out after a year.

PETER K. VOGT
La Jolla, California

ANDREW GORE WRITES, "NOTHING could be sweeter than popping a favorite movie in your PowerBook the next time you have to suffer a cross-country flight in coach class." I hate to be critical, and I really love my PowerBook, but I can't even get the beast open in coach class. It will just fit if I push myself back into my seat, place the computer in my lap, and sit as still and straight as possible. Moments of sheer panic ensue when the guy in front leans back in his seat.

In theory, private movies are a cool idea, but have you actually tried it? If it works for you, I want to switch airlines.

KEN HUDSON
Houston, Texas

We Got Game

I ENJOYED "20 UNFORGETTABLE Games" (December 1998), but I have an important thing to say about Escape Velocity: Override. It is an excellent

JEFF NEUMANN

game, but I would also like to mention the original Escape Velocity. Although the galaxy is smaller and has fewer fancy features and strange aliens, I believe that the game is far better and deserves at least some recognition. All of Override's planet graphics were simply pasted into Override from Escape Velocity, as were many weapon and outfit graphics. Most of Escape Velocity's starship graphics are much more complex than Override's, which look like a small child's drawings.

The most important thing that the author failed to mention was the expandability of both games. Developers can create plug-ins for either one to expand, alter, and enhance game play. Escape Velocity, although less advanced, has had two years for developers to expand on the galaxy, and somewhere between 200 and 500 plug-ins have been created. In fact, some developers are creating a new, hybrid game that extends beyond all limitations of Escape Velocity and Override. Its galaxy is double the size of Override's. Keep your eyes open for this upcoming game!

LUCA RESCIGNO
Stillwater, Minnesota

THE AUTHOR OF "20 UNFORGETTable Games" was extremely generous with his scoring. I thought Tomb Raider II had some of the worst game play I've ever experienced. The graphics were its only redeeming quality. I felt similarly about the other games in the feature that I'd heard of. Somebody (namely MacSoft) needs to get on the ball. The Mac gaming situation is improving, but it's sure not there yet. How compatible will OS X be with new/old/any PC games? I hope it will help significantly, since the current situation is pathetic. Being a loyal Mac user, I just want the best for the far superior Macintosh machines—I don't want to have to give them up for Microsoft-dependent crap.

ADAM O'HERN
Knoxville, Tennessee

Forsaken by 8.5

I HAVE BEEN A MACINTOSH LOYALIST since my first 128K Macintosh, in my freshman year at Dartmouth College. In 1992 I bought an Apple LaserWriter Select 310 while in business school. At the time, $1,200 seemed like a lot for a laser printer, but it was an Apple, and I was loyal, so I bought it.

Fast-forward to 1998. Apple releases OS 8.5, which is supposed to be the be-all, end-all software for Macintosh. Nowhere in the Read Me documentation was there any clue my current printer was not going to be supported. Imagine my surprise when, after installation, I could

continues

NOW YOU CAN CODE

Turn your ideas into applications

Whether its a small utility, a large application or the next great game, REALbasic lets you turn it into a reality. REALbasic is easy for beginners yet powerful enough for professional developers.

Download a FREE trial version at
www.realbasic.com or call
(512) 292-9988 for more information

REALbasic™

REALbasic is a trademark of REAL Software, Inc.

Choose 220 at www.macworld.com/getinfo

not print anything. Nada. Not even a SimpleText message or some Stickies.

It looks like anyone who has a LaserWriter Select 310 printer and wants to upgrade to 8.5 is out of luck. I find it interesting that 8.5 installs a printer driver for the Apple ImageWriter, yet doesn't support this newer laser printer. It's especially ironic that Apple decided to save a few dollars by not rewriting a printer driver, while Microsoft did the right thing and updated its LaserWriter Select 310 driver to work with Windows 98. Somehow, Apple's long-standing claim of superior ease of use seems a little disingenuous.

NED WARD
Manhattan Beach, California

The War Rages On

I JUST READ DAVID POGUE'S December column on Macworld Online ("Nuclear Browser Wars," *The Desktop Critic*). While I have a fear and loathing of Microsoft, I too am a fan of Internet Explorer. I play around with a coworker's Wintel machine and Explorer at night, and I have found that the Mac Explorer is better than Explorer in its own native soil! I agree with all of Pogue's comments about Explorer's features, and there are some he didn't mention (such as autofill and the pull-down menu for going to recently accessed URLs). I used to complain about Explorer's slowness, but either 4.01 is faster, as Microsoft claims, or I'm used to the slowness now.

My biggest complaint about Netscape Navigator is that it lacks the user-friendliness Explorer offers. I don't want to have to work hard to use the Internet, and Navigator makes it too difficult.

I respect your honesty in pointing out when a company as (dis)respected as Microsoft actually makes a good product.

REID NIXON
Austin, Texas

I READ "NUCLEAR BROWSER WARS" and have a few things for you to ponder. I use Netscape Communicator 4.5, and I am really happy with it. Microsoft is using incompatibility to make people think pages created for Navigator are buggy. HTML has a lot of tags, and many duplicate each others' functions. When you've created a page with Communicator, the page looks great in Netscape Navigator but horrible in Internet Explorer. Why? Because IE doesn't accept sloppy HTML. You would be surprised at what Navigator accepts as HTML and makes it look good. IE demands perfect HTML for the page to look good. Why didn't Microsoft make a browser that accepts even bad HTML? Isn't the idea to be able to see a page the way it was meant to be seen? I think it was meant to make Communicator-created pages look bad.

BRIAN HOLBERT
Mobile, Alabama

A Call for Détente

AFTER READING DAVID POGUE'S "Nuclear Browser Wars" and an interview with Steve Jobs in *Fortune*, something became clear to me. The age-old war between Microsoft and Apple is no longer something on which Mac users need to focus. We are in a war of ideals. Sending hate mail to anyone who says anything good about a Microsoft product is not going to show people that the Mac is a far better machine than any Wintel one. On the other hand, we cannot simply go around beating people over the head with PowerBooks and believe that they are suddenly going to convert from PC to Mac.

It is time to truly think differently about the way we spread the Apple word. Let our attitudes, work quality, and G3's do the talking, and stop shouting so loud that nobody wants to listen. I admire Pogue because he realizes that no matter what you run on your Mac, Microsoft or otherwise, it is simply going to be a better experience.

KYLE GEIGER
East Dundee, Illinois

All Hail FileMaker

JUST A QUICK THANKS TO CONtributing Editor Henry Bortman for his informative piece on how to develop a valuable postproduction tool using FileMaker's powerful database environment. Our office operations are supported by a custom database designed in FileMaker and distributed via a 10BaseT Mac network. If more people were acquainted with this application and the advantages of implementing it on the Mac, we'd see a major global increase of corporate environments using the Mac.

NEIL OLLIVIERRA
Detroit, Michigan

continues

Web authors who love control love Dreamweaver 2.

Dreamweaver 2™ is the professional way to manage your website design and production. It's visual, so it's more productive. It's sophisticated, so you have more control. It's extensible, so it integrates with any web application. Use it to give your website the discipline it deserves.

www.macromedia.com

add life to the web

macromedia®

DIRECTOR SHOCKWAVE DREAMWEAVER FIREWORKS FLASH FREEHAND GENERATOR

Choose 37 at www.macworld.com/getinfo

©1999 Macromedia, Inc. All rights reserved. Macromedia, the Macromedia logo, and Dreamweaver are trademarks or registered trademarks of Macromedia, Inc.

Conquer Disk Damage

Introducing DiskWarrior,™ a revolutionary new way to restore damaged disks!

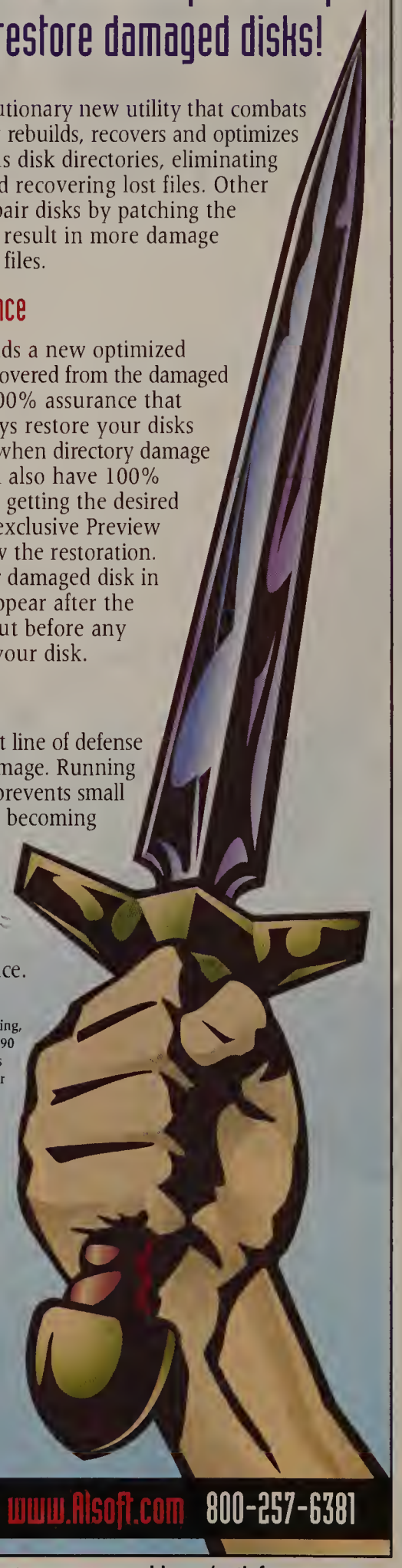
DiskWarrior is a revolutionary new utility that combats disk damage. It quickly rebuilds, recovers and optimizes your HFS and HFS Plus disk directories, eliminating all directory errors and recovering lost files. Other utilities attempt to repair disks by patching the damage. Patching can result in more damage and permanent loss of files.

100% Recovery Assurance

Only DiskWarrior builds a new optimized directory using data recovered from the damaged directory. You have 100% assurance that DiskWarrior will always restore your disks and recover your files when directory damage is your enemy.* You'll also have 100% confidence that you're getting the desired results. DiskWarrior's exclusive Preview ability lets you preview the restoration. You can examine your damaged disk in the Finder as it will appear after the directory is restored but before any changes are made to your disk.

Routine Maintenance

DiskWarrior is your first line of defense against unseen disk damage. Running DiskWarrior regularly prevents small unseen problems from becoming large ones by keeping your directories error free. You'll also keep your directories optimized to speed up overall disk performance.



©1998 Alsoft, Inc. PO Box 927, Spring, Texas 77383-0927 USA. 281-353-4090 or fax 281-353-9868. DiskWarrior is a trademark of Alsoft, Inc. *Visit our web site or call for requirements. DiskWarrior is not a magician. No utility can restore directories that have been written over.

14 Fourteenth Anniversary

THE UTILITY COMPANY

ALSOFT www.Alsoft.com 800-257-6381

Choose 140 at www.macworld.com/getinfo

Apple's Last, Best Hope

I JUST FINISHED READING THE DECember issue of *Macworld*, noting in particular the Mac-related list of gifts. The mention of painting one's G3 tower to resemble something from *Babylon 5* set off a vague theory. When it comes to computers and science fiction, I've noticed that PC people tend to enjoy the lowest-common-denominator *Star Wars* and *Star Trek* franchises, whereas Mac fans tend to prefer the much more literary *Babylon 5* and *The Prisoner*. We've all seen the T-shirts featuring Bill Gates as a Borg, with the caption "We are Microsoft. Resistance is futile. You will be assimilated." When are we Mac junkies going to see a T-shirt with Steve Jobs as a Vorlon and a caption reading, "If you go to Windows NT, you will die"?

PAUL T. RIDDELL
Dallas, Texas

Letters should be sent to *Letters*, Macworld, 301 Howard St., 16th Fl., San Francisco, CA 94105; via fax, 415/442-0766; or electronically, to letters@macworld.com. Include a return address and daytime phone number. Due to the high volume of mail received, we can't respond personally to each letter. We reserve the right to edit all letters. All published letters become the property of *Macworld*.

CORRECTIONS

Contrary to our review, Graphisoft's ArchiCAD 6.0 (Reviews, *December 1998) works with most laptops. There are also network-based site-license dongle workarounds for iMac use (USB port only).*

Better Homes and Gardens Complete Guide to Gardening ("10 Delightful Discs," December 1998) and Growing Good Roses ("Supreme Stocking Stuffers," December 1998) are no longer sold by Multimedia 2000. Both CD-ROMs are now available through CD Micro (541/471-4133, www.cdmicro.com). Growing Good Roses has a list price of $17.99.

The estimated street price for Kensington's Keyboard-in-a-Box (Reviews, *December 1998) is $49.99.*

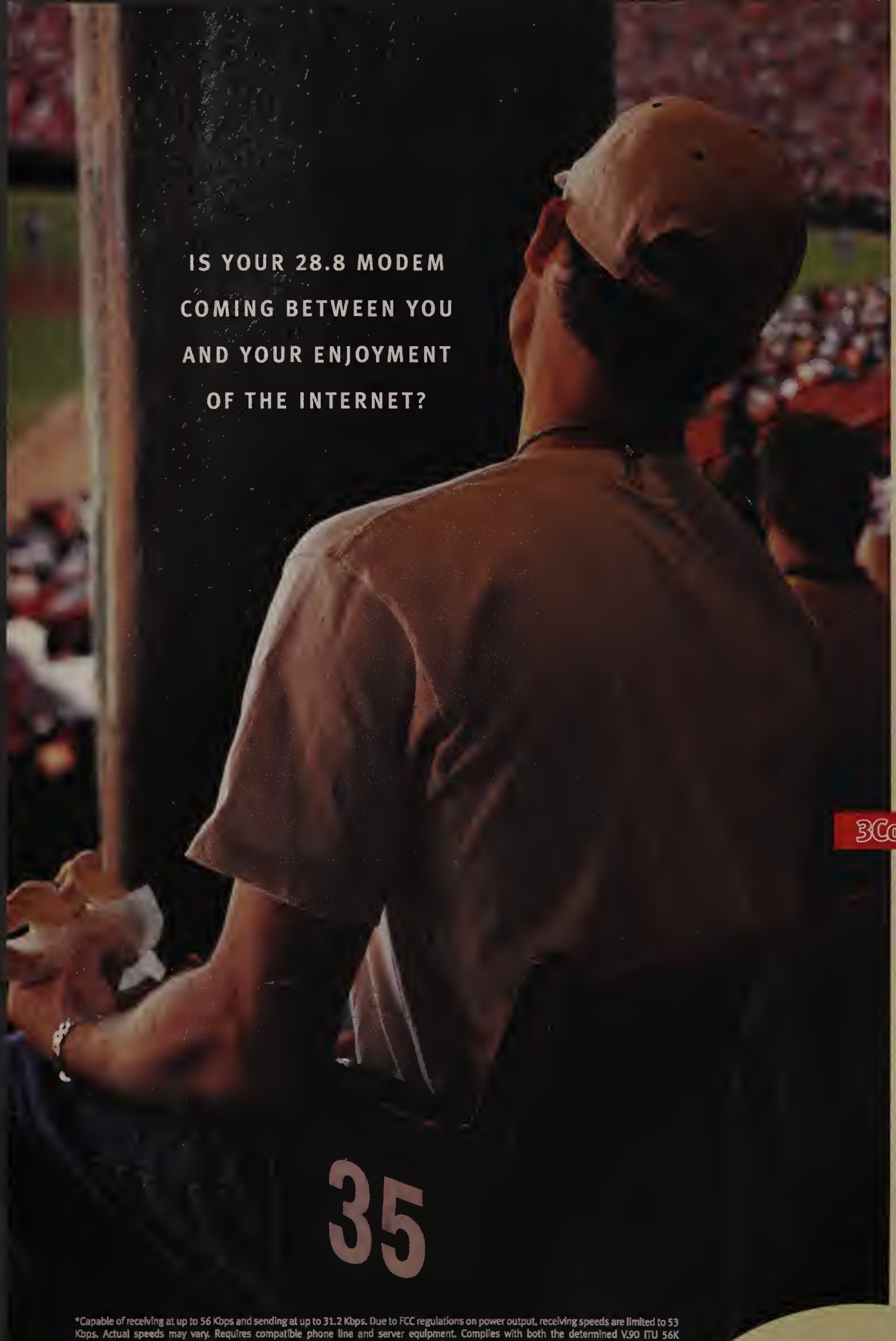
Pressing ⌘-A selects all the words on a page in a PDF file, not all the words in the document (Secrets, *December 1998).* m

Copyright © 1998 Iomega Corporation. Iomega and Jaz are registered trademarks of Iomega Corporation. Photoshop is a registered tra

It's not just your work. It's your life.

Keep it safe on the Jaz® 2GB drive and disks. The fastest performing Jaz drive with twice the capacity as the original. And it works with the millions of Jaz 1GB disks already out there. 2GB drives now priced as low as $349. Disks as low as $99. For more information or to find a dealer near you, visit our Web site at: www.iomega.com

iomega



The World's Best-Selling 56K Modem.

If your modem's not in a hurry, it's just in the way. That's why it's time to move to V.90 U.S. Robotics® 56K* desktop modems from 3Com. They deliver significantly greater overall performance† than other V.90 56K modems for high speed downloads and real-time online games.

3Com U.S. Robotics

So get over to your nearest 3Com retailer or find us at www.3com.com/56k for additional information. Because, when it comes to getting the most out of the Internet, the modem makes the difference.

*Capable of receiving at up to 56 Kbps and sending at up to 31.2 Kbps. Due to FCC regulations on power output, receiving speeds are limited to 53 Kbps. Actual speeds may vary. Requires compatible phone line and server equipment. Complies with both the determined V.90 ITU 56K standard and x2 technology protocols. Standard officially determined in February, 1998; ratification expected in September, 1998. See www.3com.com/56k †Henderson Communications Laboratories performance tests of leading internal data fax modems, June 1998.
©1998 3Com Corporation. All rights reserved. 3Com, the 3Com logo and U.S. Robotics are registered trademarks and *More connected.* is a trademark of 3Com Corporation.

3Com® More connected.™

The Vision Thing

by Andrew Gore

Deconstructing Macworld Expo

WHAT'S IN A NAME, OR A DESIGN, OR A COLOR SCHEME?

FOR ONCE, I'LL CUT TO the chase: I wouldn't normally write about Macworld Expo in this column, but this year's gathering in San Francisco was such a watershed event that I'm compelled to deconstruct it. At this Expo, something about the Mac changed fundamentally, and I've got to address it. You've probably heard enough about Apple's Lazarus-like return from the dead. Me, too. Apple's recovery in the last year could be compared to that of Lazarus only if after coming back he grabbed a straw hat and cane and belted out "Putting On the Ritz."

Welcome Back, My Friends

If you think about it, Apple's recovery is nothing less than miraculous. Apple is about to close its fifth consecutive profitable quarter, and the fact was tossed out almost in passing by Apple interim CEO Steve Jobs during his Expo keynote. The fact that the company sold more than 800,000 iMacs between the product's August 15 debut and the end of 1998, another keynote announcement from Apple's self-described iCEO, is greeted with similar joy but little surprise. *Of course* the iMac was a big hit.

What a difference a year can make.

When you have a showman as great as Steve Jobs up on stage, you come to expect magic. But this performance was special—it had drama, humor, and lots of excitement. From the guest appearance of the crazed computer HAL 9000 to the introduction of a dizzying array of new products, this was an event to remember. It might very well be the best keynote address anyone from Apple has ever given.

A Mac by Any Other Name

In the center ring of Steve's Incredible Carnival of Cool New Stuff was the Power Mac G3. No, not the old beige-box Power Mac G3—the new, translucent Power Mac G3 (see "iMac Envy," elsewhere in this issue). If Apple keeps up this trend of never renaming its products when it updates them, things are going to get mighty confusing.

Naming conventions aside, you can't help but have an emotional reaction when you see this machine; the new blue and white translucent case certainly gets your attention. Steve Jobs is clearly determined to ensure that all Macs are placed in plain view, even ones that would normally be hidden under a desk.

But for me, what's great about this new G3 are its price and feature set: $1,599 for a fully equipped minitower that

JOHN RITTER

includes a blazingly fast video card with 16MB of VRAM and a powerful new 3-D–acceleration chip set from ATI. Gamers are going to be as delighted by this machine as professionals.

But Wait, There's More

Jobs's address to the masses would have been spectacular even if all we'd gotten were these new G3's. But that was only the beginning. We were also treated to new versions of Microsoft Internet Explorer and Outlook Express, both offering features not available on any other platform, as well as a new Microsoft-operated Web site for the Mac community.

Steve Jobs's audience also got to see a single Power Mac G3 host 50 iMacs—iMacs that simultaneously booted off the G3's hard drive and then displayed digital video served up by that same G3, all thanks to the powerful new Mac OS X server software. (Think what a boon that will be for school computer labs!)

And finally, the absolute showstopper—not one, but five new flavors of iMac: strawberry, blueberry, tangerine, lime, and grape. I'm betting that grape is going to be most in demand.

A Sea Change

Jobs's surprise announcements didn't show off the biggest change in the Macintosh community. That job was done by Macworld Expo's attendees themselves.

Of those 800,000 iMacs Apple sold, some 32 percent were bought by new computer users and some 13 percent were bought by former Wintel users. That's 360,000 new Mac users. The most impressive vibe at Macworld Expo came from this infusion of fresh blood, something the increasingly anemic Mac community desperately needed.

And that means that for the first time in a long time Macworld Expo has also become a place for new users—a place where the inexperienced are embraced by a platform built on the principle that if you don't know how to use a computer, it's the computer that's stupid, not you.

After all these years, the Macintosh has finally, truly become the computer for the rest of us. Imagine that. **m**

If you feel the need to scratch and sniff your new iMac, you might want to calm down before sending mail to visionthing@macworld.com.

Nothing is more colorful than real life.

©1992 HEIDELBERG. HEIDELBERG IS A REGISTERED TRADEMARK; AND LINOCOLOR IS A TRADEMARK OF HEIDELBERG DRUCKMASCHINEN AG.

LINOCOLOR TECHNOLOGY

When capturing the essence of real life, you need scanners and software that accurately reproduce all the color, detail and subtlety of the real world. LinoColor technology gives you the power to reproduce real color, predictably. Day in, day out, on deadline. Why get anything else when you can get real?

HEIDELBERG
COLOR PUBLISHING SOLUTIONS
GET REAL. COLOR.

The image in this advertisement was scanned on a Heidelberg CPS CIRCON desktop scanner with LinoColor Elite software at 550% of original transparency.

For info about our entire line of professional color publishing solutions, call toll-free (888) LINOCOLOR. Or visit our website at: www.getrealcolor.com/mw

GET REAL.

Choose 17 at www.macworld.com/getinfo

DANGER! DANGER!

COMPETITIVE UPGRADE!

If you own Norton™ Utilities or MacTools™, you can upgrade to TechTool Pro for only

$59.95*

Don't let your important data become Lost in Space™

When your Macintosh computer is not functioning properly, it is important that you have the right tool to find and correct the problem. And as any knowledgeable robot will tell you, one can never have too many tools when important data is at stake. TechTool Pro 2 checks and repairs more aspects of your Macintosh than any other utility available. Besides repairing and recovering damaged drives (including those with the new HFS+ format), you can also test all those other critical parts of your system that other utilities ignore like RAM, CPU, floppy drives, scanners, modems, Internet connections, CD-ROM drives and much, much more. TechTool Pro will even help your computer run faster by optimizing your disk drives.

But just because TechTool Pro is the most advanced Macintosh troubleshooting utility available doesn't mean that it's difficult to use. In fact, we've added an easy-to-use interface that makes checking and fixing your Macintosh a snap. For the advanced user, our expert mode allows you to control and configure TechTool Pro in almost any way you wish.

So if Macintosh troubles are making you feel like a bubble-headed booby, check out TechTool Pro. After all, you have the most powerful computer in the galaxy. Shouldn't you be using the most powerful utility?

MicroMat Inc.
800-829-6227
707-837-8012
FAX: 707-837-0209
info@micromat.com
www.micromat.com

Fix different.™

*Limited time offer expires April 30th, 1999. Price subject to change without notice. Upgrade available only from MicroMat Computer and some select distributors. Not all distributors will be offering this special upgrade price.

© 1998 MicroMat Computer Systems, Inc. All rights reserved. TechTool is a registered trademark of MicroMat Computer Systems, Inc. Fix Different is a trademark of MicroMat Computer Systems, Inc. Macintosh is a trademark of Apple Computer, Inc. © 1998 Space Productions. Licensed by New Line Productions, Inc. All rights reserved. Norton and MacTools are trademarks of Symantec, Inc.

Choose 67 at www.macworld.com/getinfo

News

online

Internet Explorer Gets Back to Basics

MICROSOFT RELEASES VERSION 4.5 OF MAC WEB BROWSER

by Stephen Beale

JOHN RITTER

With their recent Web browser releases, Netscape and Microsoft have strived to incorporate the latest whizzy Web technologies—such as Cascading Style Sheets and DHTML—sometimes at the expense of greater functionality. Sure, you can watch a GIF file dance across the screen, but what good is it if your browser crashes or slows to a crawl?

Microsoft has taken a different tack with Internet Explorer 4.5 Macintosh Edition, the latest version of its Mac Web browser. You won't find any earth-shattering new capabilities, but the upgrade adds some clever features designed to make Web surfing easier.

Fewer Keystrokes

One of Microsoft's design goals was to reduce the number of mouse-clicks and keystrokes needed to perform common tasks. Like previous versions, Internet Explorer 4.5 features a Search Pane that lets you keep search results separate from the main browser window. The upgrade adds a similar Page Holder feature that lets you temporarily store a page containing many links.

For example, a popular news site might include links to dozens of news stories on the Web. With Page Holder, you can store that page separately and then follow its links in the main window. You can then quickly return to the Page Holder without clicking repeatedly on the Back button.

Two new features make it easier to fill out online forms. Form AutoFill lets you store personal information in a preferences file. When you encounter a form on a Web site, you can click a toolbar button to fill in the fields automatically. Form AutoComplete automatically fills in a form entry after you've entered the first few letters.

Internet Explorer 4.5 also includes several features to enhance printing from the Web. A new Print Preview function, similar to the one in Microsoft Office, lets you view a page before printing. You can turn images, backgrounds, and headers and footers on or off, and you can crop pages that include wide tables. The browser can scale the output to fit the paper,

continues on page 30

Macworld
BEST of SHOW

Best Products

MACWORLD EXPO SAN FRANCISCO 1999

ONCE AGAIN, *MACWORLD'S* editors have selected the hottest new products to appear at Macworld Expo in San Francisco.

Adobe After Effects 4.0

Adobe Systems (408/536-6000, www.adobe.com) has revamped its video-postproduction software with sophisticated masking capabilities, real-time effects previews, a powerful particle generator, and other new features.

Amorphium

This $149 3-D–graphics program from Play's Electric Image division (888/888-7529, www.amorphium.com) lets 3-D newcomers create animated models with little fuss.

Extensis PhotoGraphics

Extensis (503/274-2020, www.extensis.com) has taken the plug-in concept to new levels by offering a vector-based drawing program that runs from within Adobe Photoshop.

G3 Power Macs

The latest G3 systems from Apple Computer (408/996-1010, www.apple.com) sport a faster bus, FireWire and USB connections, and an iMac-inspired industrial design. Better yet, Apple has aggressively priced them, available in 300MHz, 350MHz, or 400MHz configurations.

Game Wizard for iMac

This 3-D–graphics accelerator from Micro Conversions (817/468-9922, www.microconversions.com) breaks the rules of iMac connectivity by using the computer's undocumented Mezzanine port. It's the only way for iMac users to access the game-playing performance of 3Dfx's Voodoo 2 chip.

Kai's Photo Soap 2

MetaCreations (805/566-6200, www.metacreations.com) has overhauled its $50 image-editing package with a more intuitive interface and useful new features, including the ability to run Adobe Photoshop plug-ins.

LiveStage

This QuickTime scripting tool from Totally Hip Software (604/685-6525, www.totallyhip.com) lets you create interactive movies that include a wide range of media elements.

Microsoft Internet Explorer 4.5

Microsoft's (425/882-8080, www.microsoft.com) free Web browser—and Outlook Express 4.5, the company's free e-mail client—dispenses with fancy bells and whistles in favor of small but important productivity improvements.

Rage 128

This 128-bit graphics chip from ATI Technologies (905/882-2600, www.atitech.com) powers the company's new line of 2-D/3-D–graphics accelerator boards—as well as Apple's new Mac systems (see "ATI Launches Next-Generation Graphics Chip," *News*, February 1999).

Virtual Game Station

This $49 program from Connectix (650/638-7380, www.connectix.com) performs a miracle: letting you run many Sony PlayStation games on a G3 Mac. It won't run every PlayStation game, and it sometimes drops frames, but it brings dozens of new game titles to the Mac.

systems

Flavorful iMacs Debut

APPLE INTRODUCES FASTER CONSUMER MAC, NOW IN FIVE COLORS

by Stephen Beale

Next time you buy an iMac, don't be surprised if the dealer asks what flavor you want. Apple Computer (408/996-1010, www.apple.com) has announced a new version of its consumer Mac that features a 266MHz G3 processor and a 6GB hard drive. But the most noticeable change is on the outside: you can now order your iMac in one of five "flavors": strawberry, blueberry, grape, tangerine, or lime. The new iMac sells for $1,199, compared with $1,299 for the original Bondi blue model, which featured a 233MHz G3 and a 4GB hard drive.

The iMac continues to blister the PC sales charts. Apple claims that it sold 800,000 iMacs between August 15—when the computer debuted—and December 31, 1998. The company says that 32 percent of iMac customers are first-time computer buyers, and another 13 percent are Wintel users.

Playing Games As Apple rolls out the new iMac, several vendors have announced products that enhance the machine's game-playing capabilities. Virtual Game Station, a $49 software emulator from Connectix (650/571-5100, www.connectix.com), lets Mac users play games designed for Sony's popular PlayStation. Micro Conversions (817/468-9922, www.microconversions.com) has unveiled an iMac version of Game Wizard, a 3-D–graphics accelerator based on 3Dfx's Voodoo 2 chip. The board plugs into the original iMac's undocumented Mezzanine port; Apple says that using the port will void the iMac warranty, but Micro Conversions claims that it has tested the board in the iMac with no negative consequences.

Apple also announced that future versions of the Mac OS will include OpenGL, a set of 3-D–graphics routines licensed from Silicon Graphics. Game developers say that OpenGL will permit faster 3-D performance on the Mac, and will also make it easier for them to port games written for the PC.

Mac OS X Clients While targeting the iMac at consumers, Apple is also positioning the machines as clients for its new Mac OS X Server, which debuted at the recent 1999 Macworld Expo in San Francisco. The server, available for $995 in a software-only version or for $4,999 when bundled with a G3 Power Mac, incorporates a Mach microkernel, the BSD 4.4 version of Unix, an Apache Web server, WebObjects, and a feature called NetBoot that allows networked Macs to be booted and configured from the server.

Apple's new iMacs come in five flavors.

In a demonstration at Macworld Expo, Apple interim CEO Steve Jobs booted a diskless iMac connected to a Mac OS X Server. Then he showed 50 iMacs running QuickTime movies from the same server.

ILLUSTRATION BY BRYAN WIGGINS

graphics

New Plug-ins Add Hostlike Functions

DRAW OR CREATE 3-D IMAGERY IN PHOTOSHOP

by Stephen Beale

Most Adobe Photoshop plug-ins are relatively simple effects filters or import-export modules that perform a few specialized tasks. But in their never-ending quest to extend Adobe's image-editing software, plug-in developers are trying a new approach: full-fledged graphics applications that run from within Photoshop. Extensis (503/274-2020, www.extensis.com) has introduced a vector drawing plug-in, while Zaxwerks (626/309-9102, www.zaxwerks.com) is offering a new 3-D modeling plug-in. Both sell for $150.

Vectors in Photoshop Extensis PhotoGraphics 1.0 is essentially a vector drawing program that runs within Photoshop. Drawing tools include line, pen, ellipse, rectangle, polygon, and starburst. Objects, which consist of editable Bézier curves, can include transparent fills. You can also create multiple text blocks on a path with control over baseline shift, kerning, tracking, leading, color, alignment, and vertical and horizontal scaling. The plug-in offers character style sheets and super- and subscript functions.

Once you've created a vector graphic, you can render it in Photoshop as a bitmap with a selected level of antialiasing. However, the graphic remains editable, and you can open it in vector format even after you've flattened the Photoshop file. The software is scheduled to ship on January 25, 1999.

Extensis is also shipping Intellihance Pro 4.0, an upgrade to its $200 image-enhancement plug-in that now lets you view multiple variations of a photo. The new features are designed to challenge Vivid Details' Test Strip, a popular plug-in for color correction.

Deeper Images Zaxwerks' 3D Invigorator lets you create shaded 3-D models from within Photoshop. You load a vector graphic and then apply one of more than 100 shapes to transform the graphic into a 3-D model. You can modify the model's geometry and add colors, surfaces, and lighting effects. Versions for Adobe Illustrator and Macromedia FreeHand are also available.

Zaxwerks is not the first vendor to offer a 3-D plug-in for Photoshop. The Three-D Filter from Andromeda Software (805/379-4109, www.andromeda.com) lets you map images to cones, spheres, cubes, and other 3-D objects. In November, Andromeda shipped Three-D Luxe, an enhanced $99 version of the plug-in that offers new surface-modeling features.

JEFF NEUMANN

A New Aura for Your Mac

YOU'VE GOT A SMART MACINTOSH, SO WHY NOT USE smart computer furniture? The $5,500 Aura system from Poetic Technologies (888/763-8421, www.poetictech.com) is a self-contained workstation with its own shelving, lighting, and air-circulation system. The unit features electronic controls for cushion firmness and other ergonomic choices. You can store your preferred chair, footrest, and keyboard drawer settings on a personal memory chip; simply plug it in and the Aura adjusts itself. The unit, scheduled to ship in February 1999, takes up 34 square feet of floor space.—MACWORLD STAFF

Product WATCH

Mac OS Update Apple (408/996-1010, www.apple.com) has posted a Mac OS 8.5 update that fixes bugs and adds new Sherlock plug-ins. **Mac OS 8.5.1,** available free from www.apple.com/macos/, remedies problems having to do with CD-ROM installation, AppleScript, and data corruption. Apple has also cut PowerBook prices by $300 to $600, depending on the model.

Monitor Mayhem Panasonic (201/348-7000, www.panasonic.com) has put the CRT on a diet. The 19-inch **PanaSync SL90** weighs 34.7 pounds and consumes about as much space as a 15-inch monitor. The $679 display offers a maximum resolution of 1,600 by 1,280 pixels. Miro Displays (650/988-7270, www.mirodisplays.com), which acquired the Radius CRT line in September 1998, has unveiled the 15-inch **Radius S-1** ($219), the 17-inch **Radius M-1** ($499), the 19-inch **Radius L-1** ($699), and the 21-inch **Radius PrecisionView XL-1** ($1,249). The S-1 provides 1,024-by-768-pixel resolution; the others offer resolutions of up to 1,600 by 1,200 pixels. Meanwhile, Optiquest (909/869-9216, www.optiquest.com) has entered the LCD-monitor fray with the 15.1-inch **L700** ($979), which offers a maximum resolution of 1,024 by 768 pixels.

3-D DV for AE Tweak and tune digital video with **Boris AE 2.0,** the $495 After Effects plug-

continues

Product WATCH

in from Artel Software (617/451-9900, www.artelsoft.com). The upgrade features 44 filters—21 of them new—including lighting, color, and particle effects.

Numbers into Charts Who wants to look at rows of numbers? DeltaGraph 4.5, $295, from SPSS (312/651-3000, www.spss.com), transforms data from Microsoft Excel 98 and other applications into graphs. The upgrade features 80 chart types, Pantone color matching support, and Mac OS 8.5 compatibility.

Cool New Tools FWB (408/848-2409, www.fwb.com) has upgraded its disk-formatting software. Hard Disk ToolKit 3.0 is Mac OS 8.5–compatible and supports Apple's HFS+ filing system. New features in the $199 package include RAID Levels 0 and 1, support for password protection on Zip and Jaz cartridges, and the ability to create high-speed Photoshop scratch disks. The program also sports a new tab-based interface.

Bright Lights Portable projectors are brighter than ever. Epson's (310/782-0770, www.epson.com) $9,999 PowerLite 7500C produces 800 ANSI lumens and weighs about 9 pounds. Mitsubishi's (714/220-2500, www.mitsubishi-display.com) $11,995 X200 weighs in at 20 pounds and provides a brightness of 1,200 ANSI lumens. Both projectors feature a native resolution of 1,024 by 768 pixels and use triple-LCD technology.—EDITED BY MICHAEL GOWAN

"INTERNET EXPLORER GETS BACK TO BASICS"

continued from page 27

and can also break a page around images and other objects rather than cutting them off.

Microsoft says it built the browser from the ground up to run on the Mac, and the program supports many Mac OS technologies. For example, the browser recognizes ColorSync profiles embedded in downloaded images, ensuring more-accurate color display. You can access the Sherlock search engine in Mac OS 8.5 directly from the Internet Explorer toolbar.

A New Outlook

Along with Internet Explorer 4.5, Microsoft has released an upgrade of Outlook Express, its free e-mail client. Outlook Express 4.5 now lets you preview e-mail message headers before you download them. A new AutoText Clean Up feature lets you rewrap paragraphs, convert text to upper- or lowercase, and remove or straighten quotation marks.

Outlook Express 4.5 also provides more-extensive AppleScript support than do previous versions. All functions are scriptable, and you can organize scripts into hierarchical menus. You can also link scripts to the program's mail-filtering function.

Along with the new software, Microsoft has launched a Mac-specific Web site called MacTopia (www.microsoft.com/mac/). In addition to information about Microsoft's Mac products, the Web site includes Mac-related news, software downloads, and a chat room.

Hostile Climate

Internet Explorer is the main bone of contention in the Justice Department's antitrust lawsuit against Microsoft, which has revealed that Microsoft and Apple may not be the happy partners they have claimed to be recently. In widely publicized testimony, Apple software chief Avie Tevanian charged that in 1997 Microsoft threatened to cancel development of Microsoft Office for Macintosh if Apple did not make Internet Explorer the default browser for the Mac. Shortly thereafter, at the 1997 Macworld Expo in Boston, Apple announced its landmark deal with Microsoft, which included the controversial decision to embrace Internet Explorer. However, at the recent 1999 Macworld Expo in San Francisco, Apple and Microsoft reaffirmed that they are working closely together despite disagreements in some areas, such as multimedia. Apple has alleged that Microsoft attempted to kill QuickTime, Apple's popular multimedia system software.

input devices

USB Graphics Tablets Debut

CALCOMP, WACOM ANNOUNCE LOW-COST TABLETS FOR iMAC

by Michael Gowan

CalComp (602/948-6540, www.calcomp.com) and Wacom Technology (360/896-9833, www.wacom.com) are hoping the pen proves mightier than the mouse—the iMac mouse, that is. Both companies have released USB versions of their entry-level graphics tablets with pressure-sensitive pens. Meanwhile, Macsense Connectivity (408/844-0320, www.macsensetech.com) has introduced the iCatch, a $10 attachment to make the iMac's notoriously unergonomic mouse easier to handle.

Translucent Tablets

CalComp's $129 USB Creation Station features a pressure-sensitive pen, a cordless

mouse, and a translucent purple 4-by-5-inch tablet. Bundled software includes Totally Hip's Web Painter and MetaCreations' Art Dabbler. The vendor offers a one-year "no questions asked" warranty. An optional tethering accessory for mouse and pen costs $10. CalComp plans to ship the tablet in early 1999.

Wacom's $99 USB PenPartner features a pressure-sensitive pen and 4-by-5-inch translucent Bondi blue tablet. It is bundled with Art Dabbler and is scheduled to ship in the first quarter of 1999.

In addition to working with the iMac, both tablets work with Apple's new USB-equipped G3 desktop Macs. Don't be surprised if the manufacturers release USB versions of their larger tablets, which target the same design pros who form a primary market for desktop Macs.

If you're just looking for a better iMac mouse, consider the iCatch. The device snaps onto the round mouse, making it easier to handle while retaining the distinctive iMac style. Choose from translucent magenta, gold, or blue.

Show this to the salesguy who tries to sell you a new printer with your USB Mac

Just because you bought a new USB Mac doesn't mean you have to buy a new printer. If you already have a PC–printer, you can easily connect it using PowerPrint USB–to–Parallel. With PowerPrint, your USB Mac can print to over 1500 PC–compatible inkjet, laser, and specialty printers.

Everything you need to print is included: an extensive list of Macintosh printer drivers along with a unique USB–to–Parallel cable. The only things not included are ideas on what to do with all the money you save. Call us today.

USB UNIVERSAL SERIAL BUS

Mac™ OS

Call us at: 888-826-7876
Or visit: www.infowave.com

Win an HP Printer!

Just register at www.infowave.com/contest and you'll automatically be entered to win a brand new HP LaserJet 1100 printer. See our site for details and register now.

Macworld MacUser Macworld Mac

INFOWAVE PowerPrint®

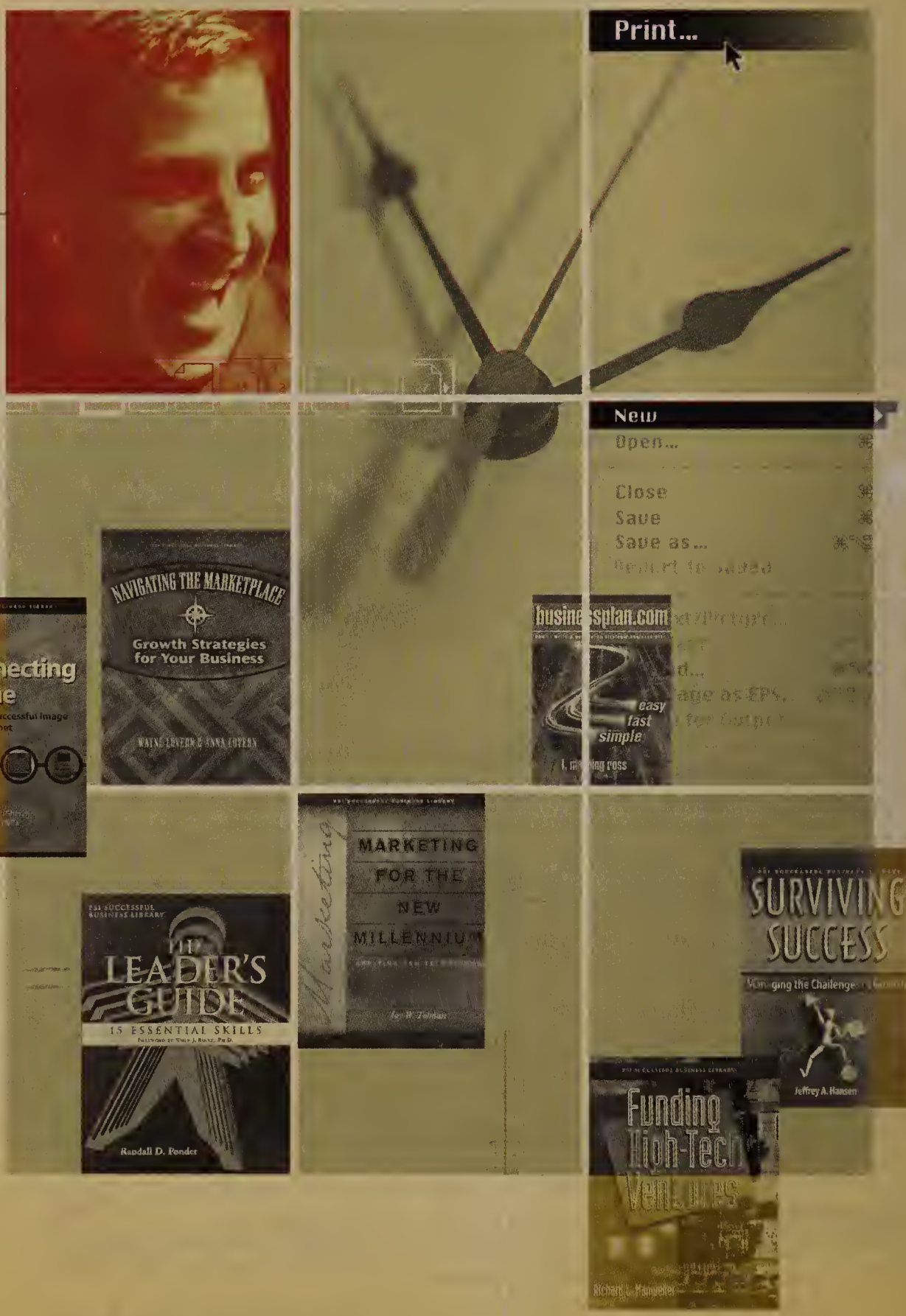
4664 Lougheed Highway, Suite 188, Burnaby, BC, Canada V5C 6B7
PHONE 604.473.3600 FAX 604.473.3699 E-MAIL info@infowave.com
© 1999 Infowave Software, Inc. Infowave, the Infowave logo, PowerPrint, and the PowerPrint logo are trademarks of Infowave Software, Inc. which may be registered in certain jurisdictions. Apple®, Mac®, iMac® and Macintosh® are registered trademarks of Apple Computer, Inc. All other trademarks are property of their respective owners.

INFOWAVE

Choose 32 at www.macworld.com/getinfo

Saving Time

Steven Burns
ART DIRECTOR
The Oasis Press



Quark and QuarkXPress are trademarks of Quark, Inc. and all applicable affiliated companies, Reg. U.S. Pat. & Tm. Off. and in many other countries. The Quark logo is a trademark of Quark, Inc. and all applicable affiliated companies. All other trademarks are the properties of their respective owners. 36035AD

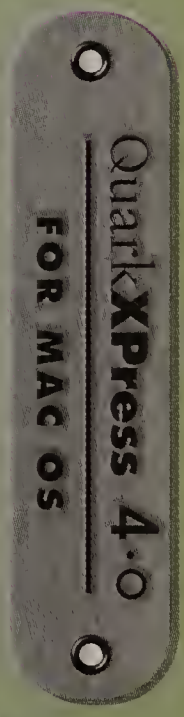
at The Oasis

For over 25 years, The Oasis Press has produced

books, audiocassettes, and software for small-business entrepreneurs. QuarkXPress™ has been their software of choice for more than 10 years. According to Steven Burns, "The long document features were the reasons we upgraded to 4.0. The ability to make a book and organize chapter files is just an incredible time-saver. We can import chapters and synchronize the chapter style sheets, get an instant page count, and even output better. Plus, indexing with QuarkXPress saves time and is less harried than using other programs."

Steven also relies on QuarkXPress to produce the graphics that are contained within each book. "We can create illustrations and figures using the Bézier illustration tools. We don't have to jump to other programs, so it saves production time."

"I already take version 4.0 for granted because the features have come very naturally. I didn't have to relearn the entire program, but it now has the features that I wanted — like character style sheets to control parts of a sentence. QuarkXPress 4.0 has saved us a tremendous amount of time."



Call (800) 676.4575 to upgrade to QuarkXPress 4.0 now.

http://www.quark.com

for a list of resellers, product information, and to download updoters

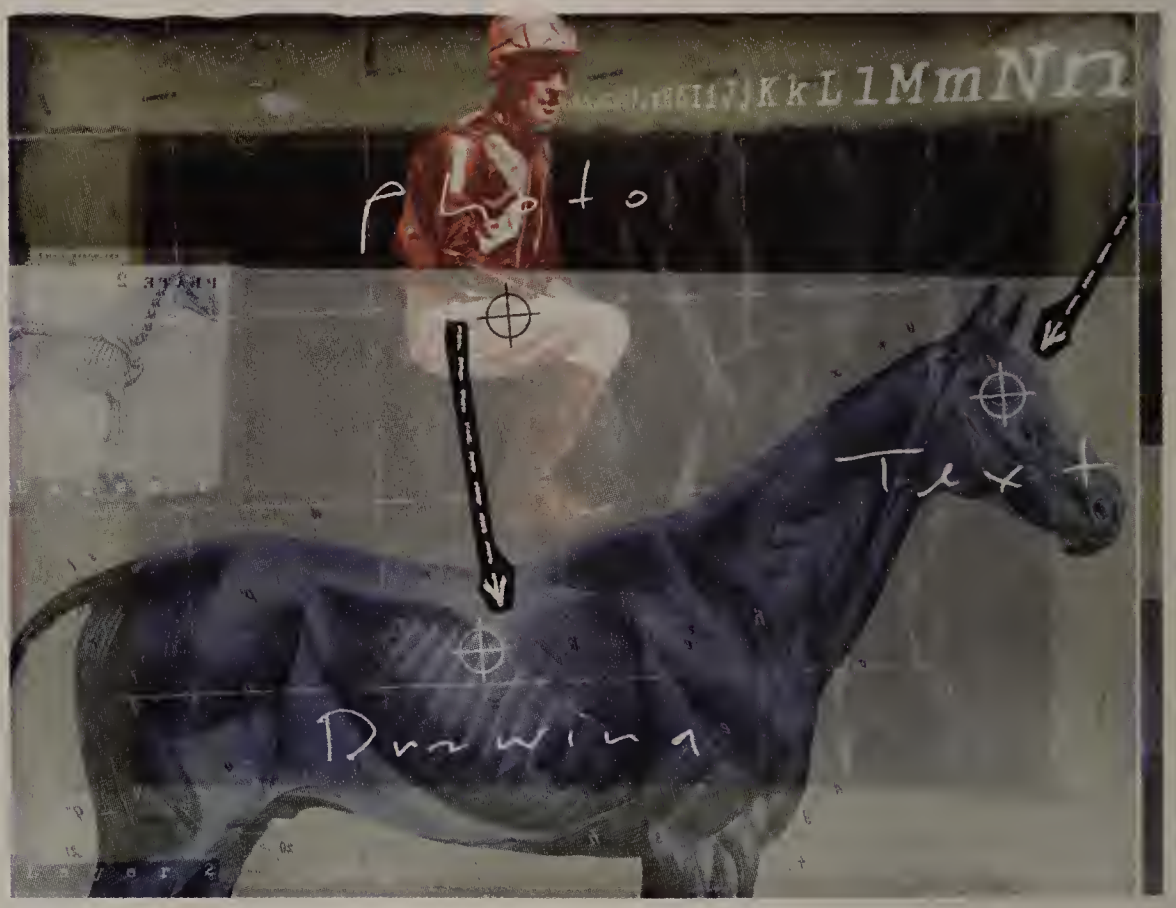
QUARK™

Choose 77 at www.macworld.com/getinfo

Reviews

Canvas 6

UNIQUE TRANSPARENCY FUNCTIONS HIGHLIGHT INTEGRATED GRAPHICS TOOL



STUART BRADFORD

EVERY GRAPHICS POWER USER knows that it takes many tools to get the job done: an illustration program for line drawings; an image editor for painterly, touch-up effects; and a page-layout or HTML authoring package to tie it all together. Deneba Software takes a different approach and offers Canvas as an argument for a single program to serve all the needs of corporate graphics users.

Deneba Canvas 6, the software's first major upgrade in three years, adds many features that will appeal to art and design pros, including powerful transparency functions and improved drafting tools. However, the program is still best suited for intermediate users seeking an all-in-one graphics package.

Transparent Objects

Adobe Illustrator can import raster images, and Adobe Photoshop can treat bitmapped layers as objects, but no program comes close to Canvas's ability to combine vector and bitmapped graphics. In Canvas, a bitmapped image is simply another object, alongside text or vector shapes. If you import a layered Photoshop file, each layer comes into Canvas as a separate paint object.

This object-oriented approach provides the framework for the most exciting new feature in Canvas 6, SpriteLayers. This technology lets you layer vector, bitmapped, and text objects with full control over transparency, masking, and transfer modes. No other program provides this level of transparency control.

Canvas provides several different ways to apply transparency. The simplest is to select an object and adjust its opacity using a slider. If you're working with a vector object, you can change the fill opacity while preserving the stroke.

You can also apply directional, radial, rectangular, or elliptical transparency fades to any object. You can define objects as vector masks and attach them to other objects, with the masking object's color values determining the level of transparency in the underlying object. Build a gradient or paint object with varying degrees of gray, then attach it to another object, and you've got a complicated transparency map that doesn't require extra channels or clipping paths.

The program's most impressive transparency feature is the Channel Mask, which lets you apply opacity vari-

REAL PRODUCTS REAL RATINGS
Reviews you can trust: Macworld rates only final shipping products, not prototypes. What we review is what you can actually buy.
OUTSTANDING: ♦♦♦♦♦ VERY GOOD: ♦♦♦♦ GOOD: ♦♦♦ FLAWED: ♦♦ UNACCEPTABLE: ♦

ations using any of the program's brushes. You simply paint the areas you want to make transparent. What's most amazing is that the feature works with bitmapped and vector objects. For example, you can place a photo of a house over a vector drawing of the interior, and then paint transparency onto the photo layer to create a combination photo and illustration cutaway.

Because transparency is implemented as a mask on top of an object, you can edit objects without affecting their masks. You can also apply transparency to groups of objects. However, if you want to edit the individual objects, you must ungroup them, which causes Canvas to remove the transparency channel for that group.

Barfly

Canvas 6 sports some interface improvements, although new users should still expect a bit of a learning curve.

You can now customize the program's tool bar, adding buttons or keyboard shortcuts for any feature. The program lacks scripting facilities, but the customization in version 6 helps streamline repetitive tasks.

Beneath the tool bar is a new Docking Bar that provides one-click access to any of the program's numerous palettes. Drag a palette to the Docking Bar, and its name appears there as a simple tab. This great feature compensates for the program's palette glut. However, rather than listing its palettes in a single menu, Canvas spreads them throughout the menu system, making them difficult to find.

Canvas 6 also offers context-sensitive menus—accessible by control-clicking on an item—and a cool new ink-extraction feature: drag any object to the Ink palette, and the program automatically adds its stroke and fill colors to the swatch.

Like its predecessor, the upgrade employs a different interface depending on what type of document—page layout, illustration, or presentation—you want to produce. For example, if you create a page layout, you get an interface that provides columns, multiple pages, and master pages; opening a new presentation document brings up a slide-making interface. However, all of these interfaces use the same basic tool set.

Unfortunately, some interface troubles remain from the previous version. For example, to modify a vector shape, you must double-click on it to invoke the vector-editing mode, which can only display a wireframe of the object.

Canvas 6's object-oriented approach also makes it difficult to perform document-wide adjustments. For example, you can't modify shadow, highlight, or midtone levels on an entire document—or even simultaneously on multiple bitmapped objects. If you need to lighten or saturate an entire image, you have to do it one object at a time. We'd like to see something akin to Photoshop's Adjustment Layers, which make it easy to experiment with different document-wide Levels and Curves adjustments.

Cutaway View Canvas 6's Channel Mask feature lets you create sophisticated transparency effects.

The Tools

Canvas 6 implements a new virtual-memory scheme that greatly improves painting performance. Brushes and other painting tools are much peppier and smoother than in previous versions. In version 5, editing a large bitmapped image was unreasonably slow, but the upgrade is adept at handling even large, high-resolution CMYK images.

Version 6 also adds new tools for creating three-point ellipses and arcs, along with a Knife tool for slicing objects. Several new features will appeal to technical illustrators: the CAD-like Fillet and Trim commands for making corners; the ability to enter mathematical equations in measurement fields; and a Transform palette that lets you scale, rotate, or skew an object using numeric values.

Like its competitors, Canvas 6 provides a full set of layer controls, including a new Guides layer for creating snap-to guides in front of or behind other layers. However, the layer implementation could use some work. To move an object between layers, you must use a Send To Layers menu command. We'd prefer a control in the Layers palette.

And the Rest . . .

Deneba has spruced up other Canvas components as well. The Page Layout facility now supports multiple master pages and less flashy options such as Auto Correct spelling checks. However, despite the program's impressive layout features, most publishing pros will want to stick with a dedicated program, such as QuarkXPress, to ensure complete support from local service bureaus.

Canvas 6 also features a built-in version of Colada, Deneba's Web publishing facility. Through Colada, you can easily create Java-based rollover buttons and animations. However, we found the resulting HTML somewhat flaky, with buttons occasionally appearing in the wrong places. Most Web designers are better off sticking with a dedicated HTML authoring package.

We found other minor instabilities, including the Brush palette's tendency to show up empty and occasional incompatibilities with certain PostScript Type 1 fonts. However, we experienced no crashes, and Canvas 6's performance improvements impressed us.

Macworld's Buying Advice

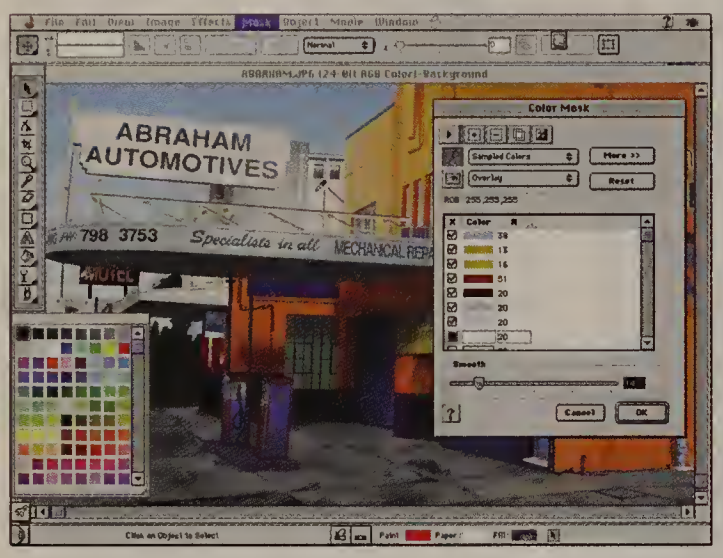
If you're a current Canvas user, you should buy this upgrade. The new transparency features and bitmap performance improvements alone are worth the price. Illustrator, Photoshop, and Macromedia FreeHand still serve high-end graphics pros better, but Canvas 6's strong integration of text, painting, and drawing tools makes it a good one-stop graphics application.—BEN LONG

RATING: ♦♦♦♦ **PROS:** Strong transparency features; good combination of vector- and bitmap-editing tools; multiple document-type interfaces make for good integration. **CONS:** Palette-heavy interface; no document-wide image adjustments; Colada Web features a bit buggy. **COMPANY:** Deneba Software (305/596-5644, www.deneba.com). **COMPANY'S ESTIMATED PRICE:** $350.

Corel Photo-Paint 8

BUGS, SLOW PERFORMANCE MAR PHOTOSHOP RIVAL

ADOBE PHOTOSHOP RULES THE world of 2-D imaging software with an iron fist. But that hasn't kept Corel from launching a direct challenge to Adobe's image-editing powerhouse. Corel Photo-Paint is an interesting contender, offering much of Photoshop's functionality and adding some unique features that will appeal to artists, such as the ability to handle animation files directly. However, the program suffers from instability and sluggish performance, both of which are serious problems for graphics professionals.



A New Look Photo-Paint features a highly customizable interface.

First Impressions

When you launch Photo-Paint, you immediately notice how different it looks from Photoshop. A Microsoft Office–style toolbar along the top of the screen provides access to key functions, and a context-sensitive Property Bar lets you choose common settings for the selected tool. One of Photo-Paint's strongest features is the ability to customize the screen layout and menus. You can even load a configuration that rearranges menu items to mimic Photoshop's layout.

In many respects, Photo-Paint surpasses Photoshop's capabilities. For starters, Photo-Paint can handle a greater number of image file formats. These include native MetaCreations Painter files and a variety of vector formats, such as AutoCAD. As you would expect, the latter convert into bitmapped images when imported.

Photo-Paint also offers strong layering functions. As in Photoshop, you can use transfer modes to determine how layers interact with each other, but you also get some modes not available in the Adobe package, such as logical OR, AND, and XOR operators. In addition, you can apply Add and Subtract transfer modes to layers; these are available as part of Photoshop's Calculations function, but not in that program's Layer Options dialog box.

Some of these transfer modes are more useful than others, but all are welcome. For example, the logical operators, which will be familiar to Macromedia Director users, are great for certain types of special effects.

Photo-Paint's Color Mask command improves on Photoshop's similar Color Range function, which allows you to create masks by selecting colors from the image. Unlike the Photoshop tool, Color Mask lets you select multiple colors simultaneously, with a visual display of each selected color range.

The list of downright cool functions in Photo-Paint is long: built-in brush symmetries that let you paint in multiple places with a single stroke, the ability to copy and paste from closed documents (unique to Photo-Paint among Macintosh graphics applications), and an HSB color mode (long missing from Photoshop). Photo-Paint also offers a diversified set of brushes reminiscent of those in MetaCreations Painter.

Some Photo-Paint features are not typically associated with image-editing software, such as the ability to create multiframe animations directly within the program. This is especially useful for Web designers creating animated GIF files.

Even in documentation, Photo-Paint has the edge: The package includes an excellent third-party tome that makes the Photoshop manual seem insubstantial by comparison. You also get a wealth of bundled software, including Xaos Tools' Paint Alchemy and Terrazzo special-effects plug-ins, Diamondsoft's Font Reserve 1.02 for font management, and Cumulus Desktop 4.0 for media management.

Ready for Prime Time?

In some cases, major additions to Photoshop 5.0, such as the History palette, are not implemented as well in Photo-Paint as they are in the Adobe package. For example, Photo-Paint's Undo List dialog box is modal, in contrast to the preferable nonmodality of Photoshop's History palette. Photo-Paint's Local Undo tool, which lets you selectively restore an image to its previous state, is no match for Photoshop's History brush, which can restore the image to any state in the History palette.

However, Photo-Paint's biggest failings are in performance and reliability. Painting in the program is sluggish regardless of brush size, and a small JPEG file that took less than five seconds to open in Photoshop 5.0 took a whopping minute to open in Photo-Paint (thankfully, file saves were more on par with those in Photoshop). Slow performance also marred RGB–to–gray-scale mode conversion, as well as Photo-Paint's unique ability to preview a file, make a selection, and open only that portion of the image.

On a more disturbing note, Photo-Paint crashed frequently on a Macintosh with plenty of RAM and scratch disk space. Many crashes were not consistently reproducible, making it difficult to create workarounds. This raises serious concerns about the program's usefulness in a professional production environment.

Macworld's Buying Advice

There is much to like about Corel Photo-Paint. It's the first program we've seen in years that could potentially go head-to-head with Photoshop (especially since the street price is almost half that of the Adobe package). However, the bugs and slow performance in this first Macintosh version give us reason to hold out for an update. When that happens, Adobe should take notice.—DAVID BIEDNY

RATING: 3½ **PROS:** Strong image-editing features; good price. **CONS:** Slow performance; buggy. **COMPANY:** Corel (613/728-8200, www.corel.com). **COMPANY'S ESTIMATED PRICE:** $349 (also available as part of CorelDraw).

Macworld®

YOU SAVE!

☐ **64% OFF**
One year/12 issues
$34.97

☐ **74% OFF**
Two years/24 issues
$49.97

Name (please print) 5SRK8

Company

Address

City State Zip

E-mail

☐ Payment enclosed. ☐ Bill me later.

Annual newsstand price $95.88. Non-U.S. orders add US$20 postage; Canadian GST included.
Your FREE CD-ROM will be shipped upon payment.

FREE CD-ROM!

Bonus Gift: Our exclusive Clip Art Sampler CD containing an extensive collection of clip art images, digital stock photos and fonts! Send for your Clip Art CD now – **FREE** with your paid order!

Check us out on the Web —
http://www.macworld.com

NO POSTAGE
NECESSARY
IF MAILED
IN THE
UNITED STATES

BUSINESS REPLY MAIL
FIRST-CLASS MAIL PERMIT NO. 66 BOULDER, CO

POSTAGE WILL BE PAID BY ADDRESSEE

Macworld®
Subscription Department
PO Box 54506
Boulder CO 80323-4506

Dawn Of The NT Workstation.

THE CLONING PERIOD.

metam

After years of clones, it's time for some new DNA. Introducing the newest addition to the Silicon Graphics® family o visual workstations. The operating system is Windows NT.® And the computer is pure Silicon Graphics. Featuring ou Integrated Visual Computing (IVC) architecture with the Cobalt™ graphics chipset, these breakthrough machine move graphics data six times faster than AGP 2X-based workstations*— a massive 3.2GB per second. Translation you can now get outrageous 2D, 3D and digital media performance on a completely compatible, totally affordabl system. What's more, our IVC architecture integrates 10/100 Ethernet, IEEE-1394,† USB and professional vide

To get more information, find a local reseller, or to order, ca

*Bandwidth based on graphics to main memory. †Requires additional software under Windows 4.0. **I/O bandwidth as com

morph

I/O for a blistering 12-fold increase in bandwidth over other PC workstations.** So whether you're into advanced 3D modeling, complex image processing, or video editing, you can now enjoy a level of throughput and graphics quality only Silicon Graphics can deliver. And the price? Less than you think. The Silicon Graphics 320™ workstation starts at just $3,395, less than some add-in graphics cards. Or choose the Silicon Graphics 540™ workstation†† from only $5,995. Ready to handle up to four Intel® Pentium® II Xeon™ processors, it's the most scalable Windows NT workstation around. Either way, you can finally move from PC clones that crawl—to a machine that truly flies.

888 SGI-4450 or visit us at **www.sgi.com/go/visual**

information on the 1999 availability of the Silicon Graphics 540 workstation, please call 1 888 SGI-4450. Prices quoted are for U.S. only.

osis
SiliconGraphics

intel inside
pentium II
PROCESSOR
SiliconGraphics
320
SiliconGraphics

Silicon Graphics 320™ Visual Workstation, starting at $3,395

Base system includes:

- *Integrated Visual Computing (IVC) architecture with Cobalt™ graphics chipset*
- *Single (dual capable) Intel® Pentium® II processor 350MHz (up to 450MHz)*
- *128MB ECC SDRAM (expandable to 1GB)*
- *6GB Ultra ATA drive (expandable to 28GB of storage) or optional Ultra2 SCSI drive*
- *3 available PCI slots on two 64-bit PCI buses*
- *1.44MB floppy drive, 32X max. CD-ROM*
- *Integrated 10/100 Fast Ethernet*
- *IEEE-1394†, parallel, serial, USB, video and audio ports*
- *Microsoft® Windows NT® 4.0*
- *3-year limited hardware warranty with 1-year onsite service*

Silicon Graphics 320, Modeling Station, $6,343

- *Single Intel® Pentium® II processor 400MHz*
- *256MB ECC SDRAM*
- *9GB Ultra2 SCSI drive*
- *100MB removable storage drive*
- *21" (19.8" viewable) monitor with Trinitron™ technology*

Silicon Graphics 320, Publishing Station, $8,283

- *Dual Intel® Pentium® II processors 400MHz*
- *256MB ECC SDRAM*
- *14.4GB Ultra ATA drive*
- *100MB removable storage drive, Ultra2 SCSI controller*
- *Polk® audio stereo speakers*
- *Silicon Graphics 1600SW™ 17.3" SuperWide™ digital flat panel monitor with ColorLock™ technology**

Silicon Graphics 540™ Visual Workstation,†† starting at $5,995

Base system includes:

- *Integrated Visual Computing (IVC) architecture with Cobalt™ graphics chipset*
- *Single (quad capable) Intel® Pentium® II Xeon™ processor 450MHz with 512K L2 cache*
- *128MB ECC SDRAM (expandable to 2GB)*
- *9GB Ultra2 SCSI drive (expandable to 54GB of storage)*
- *6 available PCI slots on two 64-bit PCI buses*
- *1.44MB floppy drive, 32X max. CD-ROM*
- *Integrated 10/100 Fast Ethernet*
- *IEEE-1394, parallel, serial, USB, video and audio ports*
- *Microsoft® Windows NT® 4.0*
- *3-year limited hardware warranty with 1-year onsite service*

Silicon Graphics 540, Modeling Station, $9,090

- *Single Intel® Pentium® II Xeon™ processor 450MHz with 512K L2 cache*
- *256MB ECC SDRAM*
- *9GB Ultra2 SCSI drive*
- *Silicon Graphics 1600SW 17.3" SuperWide digital flat panel monitor*

Silicon Graphics 540, A/V Station, $11,657

- *Single Intel® Pentium® II Xeon™ processor 450MHz with 512K L2 cache*
- *128MB ECC SDRAM*
- *Three 9GB Ultra2 SCSI high performance (10,000rpm) drives*
- *Dual stream M-JPEG compression/decompression engine*
- *21" (19.8" viewable) monitor with Trinitron technology*

Silicon Graphics 1600SW Flat Panel Monitor, $2,495**

- *17.3" 1600x1024 TFT SuperWide digital flat panel monitor with ColorLock technology*

SiliconGraphics

To get more information, find a local reseller, or to order, call **1 888 SGI-4450** or visit us at **www.sgi.com/go/visual**

†Requires additional software under Windows 4.0. *Pre-loaded software, GUI, and gamma sensor device for color calibration. ††For information on the 1999 availability of the Silicon Graphics 540 workstation, please call 888 SGI-4450. **Cost of monitor when purchased with system. Prices quoted are for U.S. only.

© 1999 Silicon Graphics, Inc. All rights reserved. Silicon Graphics is a registered trademark, and the Silicon Graphics logo, Silicon Graphics 320, Silicon Graphics 540, ColorLock, SuperWide, Cobalt and Silicon Graphics 1600SW are trademarks, of Silicon Graphics, Inc. Intel, the Intel inside logo, Pentium are registered trademarks, and Pentium II Xeon is a trademark, of Intel Corporation. Microsoft, Windows and Windows NT are registered trademarks of Microsoft Corporation. All other trademarks are property of their respective owners.

Virus-Protection Software

NORTON ANTIVIRUS 5.0 AND VIREX 5.9 GET BIGGER

THE CONTINUING WAR BETWEEN virus writers and developers of antiviral software hasn't left Macintosh users unscathed. Although we've been spared the continuous onslaught of viral proliferation that plagues the Windows world, the past year has seen several new Mac-specific software miscreants. One defense is Symantec's Norton AntiVirus 5.0.3, a major upgrade to the veteran package once known as Symantec AntiVirus for Mac. Another is Network Associates' Virex 5.9, which is outwardly unchanged from its immediate predecessors and harbors only internal differences. Both products offer a combination of protection from new viruses and the ability to scan your existing files for lurkers.

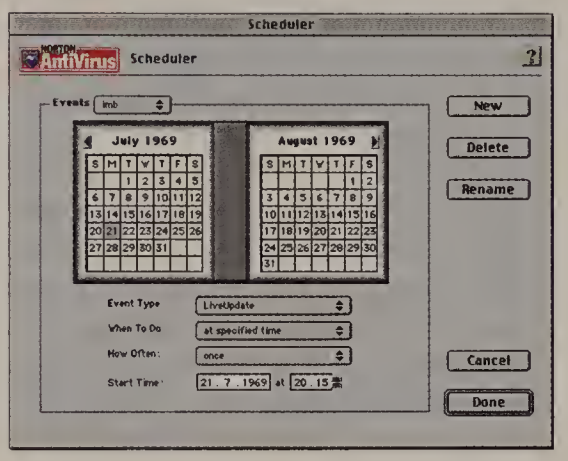
Similar, Yet Different

Both Norton AntiVirus (NAV) 5.0 and Virex 5.9 have two major components: an extension that protects your Mac in the background by stopping any viral-infection attempts and an application that lets you configure various functions, install updated virus definitions, and scan the files on your disks.

The new versions of both NAV and Virex purportedly have additional protection capabilities, such as scanning for and protecting against future viruses. It's impossible to test these claims without writing a new virus of our own, but we do know that this feature increases both packages' RAM requirements. Where the protection extensions of old were happy to take up a few hundred kilobytes at most, the current generation has gotten greedy: with virtual memory enabled, NAV uses 644K at start-up, and Virex latches on to 867K. If you turn off virtual memory, NAV grabs 832K of RAM at start-up (Virex's demands are unchanged).

Both programs can scan files stored in several popular compression formats, but their overall scanning speeds differ. When they scan a disk for the first time, they build a database of tracking information so that when they next scan the disk, files that haven't changed aren't rescanned. NAV took about 7 minutes to scan our test disk; Virex scanned the same disk in just over 6 minutes. NAV was considerably faster when rescanning, taking only 4 seconds; Virex took 20 seconds.

Both Virex and NAV have scheduling features that let you set scans for certain times. NAV lets you schedule multiple events, via a clear user interface (see "Scheduling Your Protection"): you can specify which folders or disks to scan, as well as when and how often to scan.



Scheduling Your Protection Norton AntiVirus 5.0 makes it easy to schedule scans and updates.

Virex's scheduler interface is anemic in comparison; it allows you to specify only a single scanning event and forces you to either scan all local volumes or explicitly specify which folders and disks to scan.

Virex's protection features are unobtrusive; the program alerts you only if it detects a virus. NAV, on the other hand, alerts you whenever it observes suspicious activity. This overzealousness results in frequent interruptions, despite NAV's ability to "learn" about and not report the same infractions repeatedly.

Staying Current

Staying up-to-date in the viral arms race requires diligent checking for updates. Both Symantec and Network Associates post monthly virus-definition updates that allow the packages to learn about new viruses. To stay current, you have to download the updates from the company's Web site and install them.

NAV's new LiveUpdate feature is intended to remove the tedium of checking for, downloading, and installing such updates. After communicating with a server at Symantec that stores the latest virus definitions, NAV checks to see whether newer definitions are available and then downloads and installs them.

This is an excellent idea in theory, but LiveUpdate is seriously flawed. Although you can use your modem to make a toll call to Symantec's server, most people will use their Internet connection, because it's both cheaper and more convenient. However, once NAV has connected to the server and begins downloading over the Internet, it uses the archaic—and staggeringly inefficient—Xmodem protocol to transfer the update. Also, despite NAV's ability to decompress files, the updates are transmitted uncompressed, further bloating the download time.

In tests with a 33.6-Kbps modem, NAV took 22 minutes to download an update—roughly 6 Kbps. In contrast, downloading Symantec's stand-alone updater via FTP took about half the time, even though the updater was twice the size of the "live" update. LiveUpdate may free you from manually performing multiple update steps, but it will cost you in terms of time and online connect fees.

Macworld's Buying Advice

Virex 5.9 is the less obtrusive of the two antiviral packages, and you're unlikely to know it's doing its protective duty until it detects a problem. However, its user interface needs a feature overhaul, its RAM requirements are hefty, and it lacks an automated update feature. Using Norton AntiVirus 5.0.3, despite its problematic LiveUpdate feature and overprotective behavior, is the best way to protect your Mac from invasion.—STEPHAN SOMOGYI

Norton AntiVirus 5.0.3

RATING: ♦♦♦½ **PROS:** Straightforward interface; fast rescanning. **CONS:** Flawed LiveUpdate feature; invasive default protection settings; large RAM requirement (huge without virtual memory). **COMPANY:** Symantec (541/334-6054, www.symantec.com). **LIST PRICE:** $89.

Virex 5.9

RATING: ♦♦♦ **PROS:** Faster first-time scanning than NAV; less-intrusive protection. **CONS:** Large RAM footprint; no automated virus-definition update. **COMPANY:** Network Associates (408/988-3832, www.nai.com). **LIST PRICE:** $69.95.

Buz Multimedia Producer

INEXPENSIVE, FEATURE-PACKED VIDEO-CAPTURE SYSTEM

WHY WOULD A COMPANY that specializes in removable-storage devices come out with a video-capture card? Maybe for the same reason Nabisco makes fat-filled Oreos as well as fat-free SnackWell's: because buying one fuels your need for the other.

Iomega's Buz Multimedia Producer lets you capture and output full-screen video on a Power Mac G3 at up to 30 frames per second (fps). At $299, it packs a lot of buzz for the buck. But like any other video-editing system, it's a complex beast that needs tweaking to deliver the best results, and its sketchy documentation does little to help.

The Hardware

On the hardware side, the Buz is a PCI card containing both video-capture circuitry and an Ultra SCSI interface that gives your Mac an additional seven SCSI addresses. This dual personality is behind the Buz's need for a genuine (not upgraded) Power Mac G3: earlier Power Macs aren't fully compatible with the PCI 2.1 specification, and the Buz card uses PCI 2.1 features to provide both video capture and SCSI on the same card.

GIBSON

The Buz also includes a convenience missing from many costlier cards: a breakout box that obviates groping behind the Mac to connect audio and video devices. The box's cable connects to the Buz card and to your Macintosh's audio-input and -output jacks. The box itself contains RCA audio-input and -output jacks and S-Video as well as composite-video input and output jacks.

The Buz card's Ultra SCSI interface supports internal as well as external devices. A 50-pin connector on the top of the card can accommodate an internal device's ribbon connector, and a 50-pin connector on the back handles external devices. You'll probably need an adapter cable for the latter, because the Buz card uses a tiny, high-density connector.

The Buz is also available for Windows 95 and 98, and the capture card is identical on both platforms. Download the Buz drivers from Iomega's Web site if you want to use the card in a Windows computer. You'll have to supply your own video-capture and -editing software, however, and you'll probably have to endure the hours of tweaking and troubleshooting that often accompany video editing under Windows: as I write this, I still haven't quite gotten the card to work properly in my Windows 98 machine. (You'll find an excellent resource for Buz troubleshooting at www.trix.com/buz/.)

The Software

The Buz comes with a generous software bundle that includes Apple's $29 QuickTime 3 Pro and Adobe's Premiere LE 4.2. (You can upgrade to the full Premiere 5.1 package for $199.) Iomega says these extras are the reason why the Mac version costs $100 more than its Windows counterpart, which doesn't include QuickTime 3 Pro and whose video-editing package is far less capable than Premiere LE.

One of the bundled utilities, RecordIt, lets you record sound clips and tracks from audio CDs and then play the tracks in whatever order you like. Using MPEG Layer II compression, RecordIt offers excellent sound quality and yields reasonably small files. You can't play RecordIt tracks on other computers, however, unless they have the RecordIt Decoder system extension. The utility might be more useful if it used the MPEG Layer III (MP3) audio format.

The Experience

Despite its many hardware and software components, the Buz is easy to install. Its CD-ROM contains a lavishly produced installer and interactive guide that uses QuickTime movies to pass along tips on lighting, camera positioning, and editing. But the interactive guide says next to nothing about digitizing video with the Buz, and the skimpy manual isn't much better. Iomega gently guides beginners into the middle of a freeway—and then abandons them there.

Once you get up to speed, though, you find a remarkably capable video-capture system. The Buz uses Zoran's Motion JPEG compression and digitizing chips to support capture sizes of up to 720 by 480 pixels and rates of up to 30 frames and 60 fields per second. In English: you can use the Buz to capture and output full-screen, full-motion video.

One drawback is that, like DV camcorders and many professional video products, the Buz uses nonsquare pixels. That can lead to complications if your projects contain source material, such as still images or already captured video, that was created elsewhere. The Buz's documentation says nothing about this. (For insights on dealing with nonsquare pixels, see "Set Your Video on FireWire," *Create*, October 1998.)

The quality of Buz video captures is excellent, particularly at the system's lowest compression setting (3:1). But you'll need a fast SCSI hard drive to capture full-screen, full-motion video at low settings. My G3's internal IDE hard drive was able to keep up with 352-by-240-pixel, 30-fps captures but dropped frames at full-screen settings.

The Buz didn't fare as well when printing to video; the contrast was too high for my taste, and you can't adjust it. Still, the Buz's output is adequate for home videos and other noncritical work.

Macworld's Buying Advice

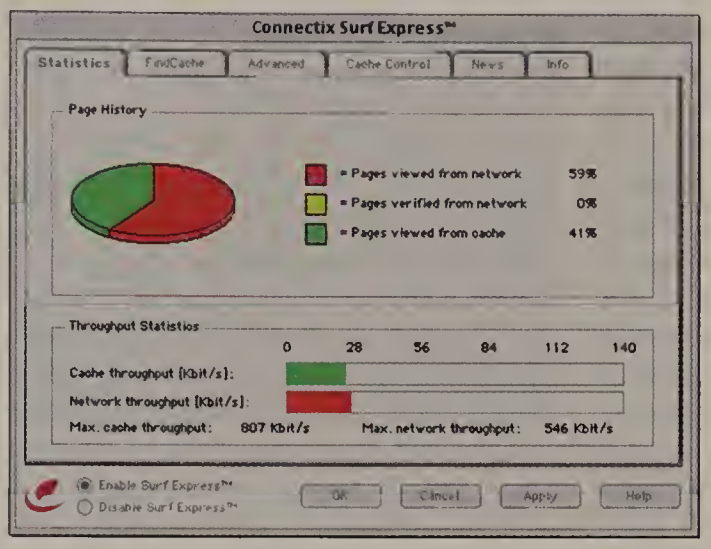
The Buz is a bargain, outperforming cards that cost twice as much and offering unique features such as a second SCSI bus and that terrific breakout box. The Buz may not provide the "broadcast-quality" video its box claims, but it's more than adequate if you're producing video destined for CD-ROMs, the Web, or presentations.—JIM HEID

RATING: ●●●½ **PROS:** Great value; excellent capture quality; convenient breakout box. **CONS:** Mediocre video-output quality; poor documentation. **COMPANY:** Iomega (801/778-1000, www.iomega.com). **LIST PRICE:** $299.

Web Proxy Servers

CACHING SOFTWARE SPEEDS UP THE WEB

BANDWIDTH ON THE INTERNET IS a precious commodity, one that individuals as well as groups accessing the Web want to use as efficiently as possible. Two new products help by caching Web objects you've already downloaded. Connectix's Surf Express Deluxe 1.5 and Maxum Development's WebDoubler 1.0 have different audiences—Surf Express is for single users, whereas WebDoubler targets small groups of users—but both do a good job of speeding repeat accesses of Web pages.



Surf Express Statistics Surf Express Deluxe graphs performance gains as you surf, showing you what percentage of your Web requests comes from the cache.

Cache the Wave

Surf Express Deluxe comes on a CD-ROM that contains versions for Macs and Windows machines, and installation is quick and easy. When you reboot, the Surf Express extension intercepts Web requests from your browser and tries to satisfy them from the disk cache.

You don't need to configure Surf Express (although you can launch the Surf Express application to monitor the program's performance); you simply launch your Web browser, and Surf Express replaces the browser's existing caching mechanism with one that caches more data and retrieves it more quickly.

You install WebDoubler (from a single floppy) on a Mac you've designated as a proxy server to other users on your network. You then configure the browsers of users whose Web requests you want to cache, so that they use the WebDoubler Mac as their proxy. Although caching is WebDoubler's forte, the program is geared for other tasks as well; its plug-in–module architecture makes it readily extensible. In addition to HTTP-caching plug-ins, WebDoubler includes plug-ins for cache control, content filtering, and user authentication. And you can administer the program from any Web browser, making remote administration simple.

Gnarly Features

Surf Express lets you configure several important performance parameters. For example, you can specify the size of the largest file to cache, expiration times for DNS information, and a list of URLs that should always be cached or never be cached—for example, sites that change frequently, such as stock-reporting services. (WebDoubler lacks this fine control, although you can set the program's "aggressiveness" level—how likely it is to cache a page that may change frequently—and it lets you distribute the cache over multiple hard disks for better performance.) Surf Express gives you a graphical display of performance, showing the percentage of your computer's Web requests it's retrieving from the cache (see "Surf Express Statistics"). You can also search the cache for text strings.

Surf Express includes a utility called SuperSonic Search that lets you invoke five popular search engines simultaneously and obtain a single report consolidating the results from all of them. But although SuperSonic Search is fast, it limits you to five predetermined search engines. This would have been a breakthrough a year ago, but Apple's new multi-index search utility, Sherlock, far surpasses SuperSonic Search in features and ease of use.

Whereas Surf Express boosts Internet performance for individual users, WebDoubler does that and also helps you administer a Web-security policy for an entire network; you can establish a database of users and privileges to provide customized caching and access controls. And WebDoubler uses the Platform for Internet Content Selection (PICS) to block end users from seeing inappropriate material. However, PICS filters access only to sites that have a previously determined rating or that contain a specific keyword, such as *sex* or *xxx*. This scheme isn't nearly as reliable as using a professionally reviewed and updated list of prohibited sites.

During testing, both products did a good job of caching pages and bringing them up quickly on subsequent accesses. The speedup can be truly remarkable if you're running the cache software on a fast CPU—20 to 40 times as fast over a modem as downloading the page from the Web. Accessing noncached pages tended to be slightly but noticeably slower with WebDoubler than with Surf Express, but because the former caches data from multiple users, the likelihood of a cached hit is higher than with the single-user Surf Express. Moreover, enlarging the size of Surf Express's cache beyond a certain point actually slowed overall throughput, whereas WebDoubler wanted as large a cache as possible.

Macworld's Buying Advice

If you simply want to improve Web-surfing performance for a small group of users, consider buying multiple copies of the capable, inexpensive Surf Express Deluxe. For larger groups, or if you need to add a layer of access controls, get WebDoubler.—MEL BECKMAN

Surf Express Deluxe 1.5

RATING: ♦♦♦♦ **PROS:** Excellent caching performance; graphical performance display; cache search; flexible configuration. **CONS:** No content filtering; performance drags as cache grows. **COMPANY:** Connectix (650/571-5100, www.connectix.com). **LIST PRICE:** $44.95.

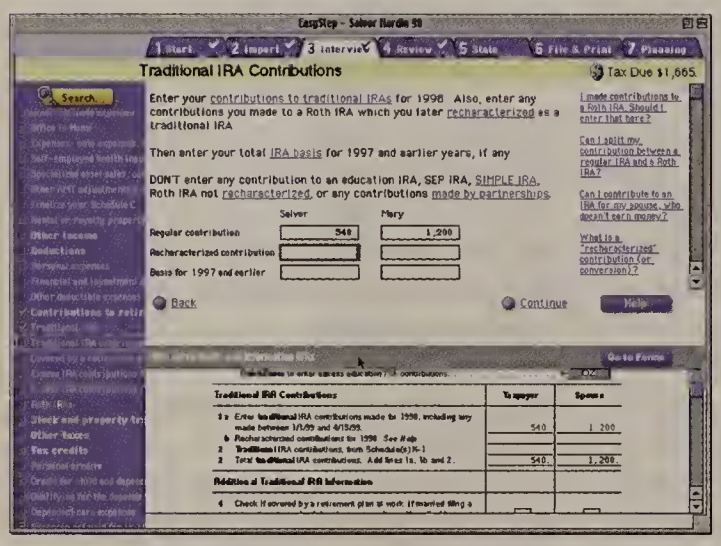
WebDoubler 1.0

RATING: ♦♦♦½ **PROS:** Excellent caching performance; Web administration; individual user profiles; plug-in architecture. **CONS:** Expensive; slows noncached access; PICS-only content filtering. **COMPANY:** Maxum Development (630/830-1113, www.maxum.com). **LIST PRICE:** $895.

Tax-Preparation Software

WEB SITE TAKES ON MACINTAX DELUXE, KIPLINGER TAXCUT

EVERYTHING SEEMS TO BE FEELing the Web's influence, and this year's crop of tax-preparation software is no exception. Intuit's MacInTax Deluxe '98 and Block Financial's Kiplinger TaxCut 1998 not only sport new Web-influenced features, such as hyperlinks and FAQs, but also link to Web databases of tax information and let you file your return electronically. MacInTax's new navigation features, a streamlined interface, and improved tax guidance make it the clear winner, and TaxCut is a close second.



Tax Advice at Your Fingertips MacInTax Deluxe '98 puts everything within easy reach. The interview is at the top, the tax form at the bottom, and the navigation bar on the left.

This year, you can even bypass CD-ROMs altogether and do your taxes on a Web site. Universal Tax Systems' SecureTax.com is software that you access through your browser to prepare your tax return. Unfortunately, SecureTax.com neglects to take advantage of the Web's potential, and it's also hampered by the limitations of the Web. Worse, it doesn't offer the wealth of tax help that makes MacInTax and TaxCut so invaluable.

Just Answer the Question

No matter which program you choose, you either enter tax information directly into federal or state forms or simply let the software interview you and fill out the forms based on your answers. MacInTax and TaxCut are much better interviewers than SecureTax.com, which doesn't even ask if you're self-employed; you have to go to the on-screen Schedule C form and fill in the information. And MacInTax and TaxCut start the interview by asking if you want to import information from last year's return. (You can also import information from Intuit's Quicken and other business programs.) SecureTax.com does not offer that option.

Whereas the interviews in MacInTax and TaxCut actually help you make decisions, SecureTax.com's interview simply collects data. For instance, MacInTax and TaxCut each use your answers to determine whether you can claim a particular person as a dependent and get this year's new child tax credit; SecureTax.com simply asks you to list your dependents.

Getting Around

Help with the tax code is what makes tax software more than just a calculator. Both MacInTax and TaxCut repeat the same information in various ways, just in case it didn't sink in the first time. Both also offer tips, IRS instructions, FAQs, and QuickTime movies.

MacInTax distinguishes itself by putting specific tax help exactly where you need it. For instance, the program puts relevant FAQs on almost every page—click on a question, and the answer appears. MacInTax also integrates its videos into the interview, whereas TaxCut lists them in the help window. And MacInTax hyperlinks every tax term on every page to a definition; TaxCut has some hyperlinks, but not nearly as many. Ironically, SecureTax.com has no hyperlinked terms—you have to click on a help link and search for a term.

In last year's versions of both MacInTax and TaxCut, you had to click on a topic and then click through the screens until you found the page you wanted. You can now get to any MacInTax interview page with a single click. (TaxCut still takes you to the beginning of a section, and you have to click until you find the page you want.) And both MacInTax and TaxCut have improved the way they display the navigation window: in TaxCut you click on a button to bring up the navigation window when you need it, and MacInTax now positions its overview window at the left and shows only half of it, to conserve screen space; when you pass your cursor over the window, it's displayed in its entirety.

You'll find no such niceties in SecureTax.com. Besides making navigation a chore, it's slow, it won't work if you've disabled cookies in your Web browser, and it's prone to displaying erroneous error messages.

Macworld's Buying Advice

Once again, MacInTax Deluxe is the clear choice for tax-preparation software, offering more interface, help, and navigation improvements than Kiplinger TaxCut. MacInTax will also appeal to users who don't live in one of the ten states for which TaxCut has forms.

SecureTax.com, although it's less expensive (you pay only when you print your return or file it electronically), just isn't in the same league as MacInTax and TaxCut. There are no advantages to having your private tax information stored on someone else's Web server—and, in this case, plenty of drawbacks.—JOHN RIZZO

Kiplinger TaxCut 1998

RATING: ♦♦♦♦ **PROS:** Straightforward interview process; good, plentiful tax advice. **CONS:** State-return forms for only ten states; navigation not as easy as in MacInTax. **COMPANY:** Block Financial (617/491-1800, www.taxcut.com). **LIST PRICE:** $39.95 (electronic filing free).

MacInTax Deluxe '98

RATING: ♦♦♦♦½ **PROS:** Excellent navigational aids; extensive hyperlinks; easy to use. **CONS:** None significant. **COMPANY:** Intuit Software (520/901-3110, www.macintax.com). **LIST PRICE:** $49.95 (electronic filing free).

SecureTax.com

RATING: ♦♦½ **PROS:** Inexpensive. **CONS:** Slow; incomplete interview process; weak help function; tax data isn't stored locally. **COMPANY:** Universal Tax Systems (706/232-7757, www.securetax.com). **LIST PRICE:** Free for entering data; $14.95 for printing or filing electronically.

G3 Upgrades for PowerBooks

CARDS GIVE NEW LIFE TO POWERBOOK 1400 AND 2400

APPLE'S POWERBOOK 1400 AND 2400 were popular portables but lack the horsepower of current G3 PowerBooks. So how do you keep up with the latest software without trading in your old PowerBook? Consider a G3 upgrade. Macworld Lab looked at PowerBook upgrades from Vimage and Newer Technology. Vimage offers a PowerBook 1400 upgrade, and Newer offers upgrades for the 1400 and the 2400.

The $499 Vpower PB 1400 G3/233, from Vimage, features a 233MHz G3 with a 512K backside cache running at 117MHz. Newer's $799 Nupowr G3 1400 250/125 sports a 250MHz G3 with a 1MB cache running at 125MHz. (Newer also sells a 233MHz card for the 1400, which we did not test.) Newer's $799 Nupowr G3 2400 240/120 is the lone upgrade available for the PowerBook 2400. However, by the time you read this, that model will likely be replaced by the $999 Nupowr G3 240/160, which features a 1MB backside cache.

The PowerBook 1400 was designed for easy entry, and both cards for this model offer straightforward installation.

Installing Newer's card in the PowerBook 2400 is much more complicated, requiring the removal of 64 screws. Newer provides a list of dealers that can install the upgrade for $99. Should you install it yourself—which we do not recommend—Newer requires you to sign a waiver freeing the vendor of any liability.

ARNOLD TIOSEJO

Newer's Nupowr G3 1400 250/125 (left) and Vimage's Vpower PB 1400 G3/233 (right).

The Nupowr G3 1400 250/125 outpaced the 233MHz Vimage card, but not by much. Both cards offer significant speed improvements over an unaccelerated PowerBook 1400 (see "G3 Upgrades Boost PowerBook Performance"). Likewise, Newer's 2400 upgrade gave us a dramatic overall speed boost for most operations.

These upgrades can extend the life of your PowerBook, but no upgrade lets you grow beyond the limitations of the base machine. For example, the PowerBook 1400 has a 64MB RAM ceiling and the 2400 tops out at 80MB, limiting their usefulness as replacements for high-end G3 desktops.

Macworld's Buying Advice

Newer's PowerBook 2400 upgrade is a solid performer, but the $99 you pay for dealer installation adds to an already high price tag.

The PowerBook 1400 upgrades are the most cost-effective means of getting G3 power in a portable. Both cards offer excellent performance, with the Newer card nosing out the Vimage upgrade. However, the Newer card costs $300 more. Unless you need the highest speed at any cost, save yourself some money and buy the Vimage card.—JEFFY MILSTEAD

Nupowr G3 1400 250/125

RATING: ♦♦♦♦ **PROS:** Top performer among 1400 cards. **CONS:** Expensive. **COMPANY:** Newer Technology (316/943-0222, www.newertech.com). **LIST PRICE:** $799.

Nupowr G3 2400 240/120

RATING: ♦♦♦♦ **PROS:** Strong performance boost. **CONS:** Dealer installation required. **COMPANY:** Newer Technology (316/943-0222, www.newertech.com). **LIST PRICE:** $799.

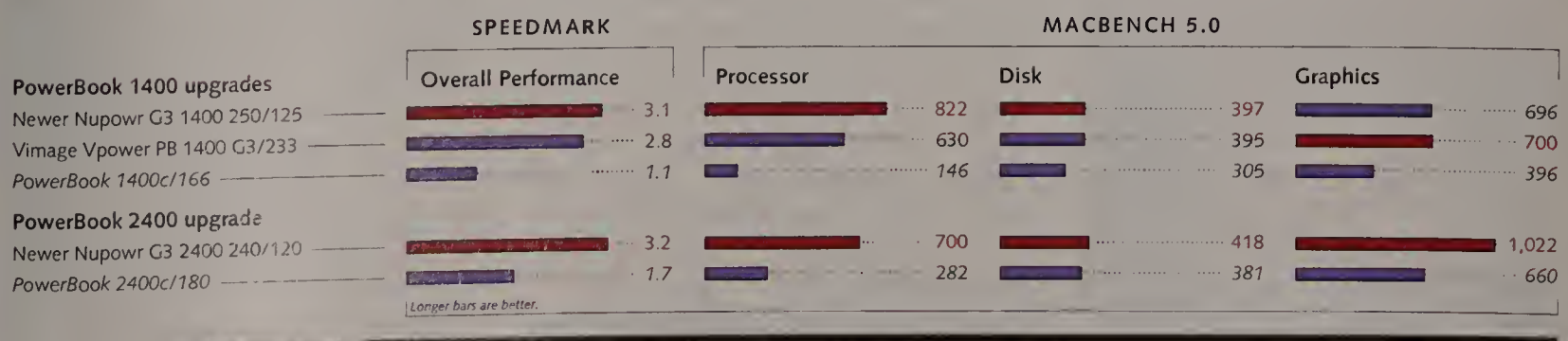
Vpower PB 1400 G3/233

RATING: ♦♦♦♦ **PROS:** Fast; good value. **CONS:** None significant. **COMPANY:** Vimage (877/484-6243, www.vimagestore.com). **LIST PRICE:** $499.

Macworld LAB TEST

G3 Upgrades Boost PowerBook Performance

Best results in red. *Reference systems in italics.* SpeedMark scores are relative to that of a Power Mac 7100/80, which is assigned a score of 1.0. MacBench 5.0 scores are relative to those of a Power Mac G3/300, which is assigned a score of 1,000 for each test.



Behind Our Tests For detailed information on our tests, see www.macworld.com/tests/.—Macworld Lab testing supervised by Gil Loyola

Digital Recording Studios

CUBASE VST, LOGIC AUDIO, AND VISION DSP DO MIDI

FOUR MUSIC-SOFTWARE TITANS—Emagic, Mark of the Unicorn, Opcode Systems, and Steinberg—have spent the last several years jockeying for position in the battle of the MIDI/digital-audio sequencers, and three of them recently released updated versions of their applications. Emagic's Logic Audio Gold 3.6, Opcode's Vision DSP 4.1, and Steinberg's Cubase VST 4.0 are all capable digital recording studios, but Logic Audio is the best choice for those who aren't afraid to delve into the nitty-gritty details of MIDI data.

Go for the Gold The General MIDI mixer is just one of the items you control via Logic Audio's Environment window.

Although the three applications differ in interface, ease of use, and flexibility, they have an awful lot in common. They can all record nearly endless numbers of MIDI tracks as well as a more limited number of high-resolution digital-audio tracks via a Power Macintosh's on-board audio input or through add-on digital-audio hardware. Each program also gives you several ways to enter and edit MIDI data, and each supports Steinberg's VST (Virtual Studio Technology) effects–plug-ins standard. All three also support Steinberg's ASIO (Audio Stream In/Out) standard, which allows users with ASIO-compatible hardware to use VST effects plug-ins. On the downside, all the applications have a floppy-disk–based copy-protection scheme. Worse yet, Logic Audio also requires a hardware dongle that attaches to the ADB bus.

Building the Perfect Beast

Crammed with just about every MIDI feature you can imagine—and quite a few digital-audio features as well—Logic Audio is undoubtedly the most flexible of the three programs. You can perform some amazing tricks in its Environment window, an object-oriented programming environment that lets you manipulate the minutiae of MIDI. For example, you can string together a series of objects that cause the notes you play on your synthesizer to be transposed up a major third, arpeggiated, and split to other MIDI channels. Logic Audio also possesses the strongest notation component of the bunch, rivaling that of Cubase VST's more expensive sibling, Cubase VST Score. But this power comes at a price—a very steep learning curve aggravated by a thick, inadequately indexed manual. The tutorial-like PDF file called Guidebook is helpful for users starting out with the program, but switching between Adobe Acrobat and Logic Audio is inconvenient.

And the Playing Is Easy

In contrast with Logic Audio, Cubase VST is nothing if not easy to use. In version 4.0, Steinberg has introduced several interface changes that make it a breeze to edit and control data within the program's main Arrange window. And drag and drop is now well integrated into the program; for example, you can drag audio and MIDI parts on and off the Mac's desktop as well as from some of the program's editor windows to other windows. (Logic Audio's implementation of drag and drop is more limited—you can drag audio from the desktop to the Audio window but not from the window to the desktop.)

Cubase VST not only has the most approachable interface of the three but it's also the easiest application to learn, thanks to Steinberg's comprehensive but unintimidating Getting Started manual.

Clearer Vision

In my review of Opcode's Studio Vision Pro 4.0 (see *Reviews*, August 1998), I lamented the program's lack of on-board effects. The problem has been rectified in the follow-up to Studio Vision Pro; the less expensive Vision DSP 4.1 supports VST plug-ins and ships with a fine-sounding collection of effects. Like the other two programs, Vision DSP ships with EQ and supports buses and sends, which let you send a group of audio tracks to a single channel and apply an effect there.

Although Opcode has reserved its Pitch-to-MIDI feature for the high-end Studio Vision Pro, Vision DSP—unlike the other programs—supports the 24-bit audio used with high-end digital-audio hardware. Vision DSP also includes a free copy of Galaxy, Opcode's solid synthesizer librarian program. And Vision still has the most comprehensive and easiest-to-use controller-data–editing feature of any MIDI sequencer on the market.

Macworld's Buying Advice

Cubase VST and Vision DSP are closely matched; when you're comparison shopping, listen carefully to the effects each offers and see how you like working with the programs. The wild card of the bunch is Logic Audio. If you're driven to twiddle with every picayune parameter and won't mind spending weeks struggling with reams of often inadequate documentation, Emagic's immensely powerful digital recording studio could be the most logical choice.—CHRISTOPHER BREEN

Cubase VST 4.0

RATING: ♦♦♦♦ **PROS:** Easy-to-use interface; extensive drag-and-drop support. **CONS:** No 24-bit support; copy protection. **COMPANY:** Steinberg (818/993-4091, www.steinberg.de). **LIST PRICE:** $399.

Logic Audio Gold 3.6

RATING: ♦♦♦♦ **PROS:** Powerful MIDI processing; strong notation component. **CONS:** Steep learning curve; copy protection. **COMPANY:** Emagic (530/477-1051, www.emagic.de). **LIST PRICE:** $499.

Vision DSP 4.1

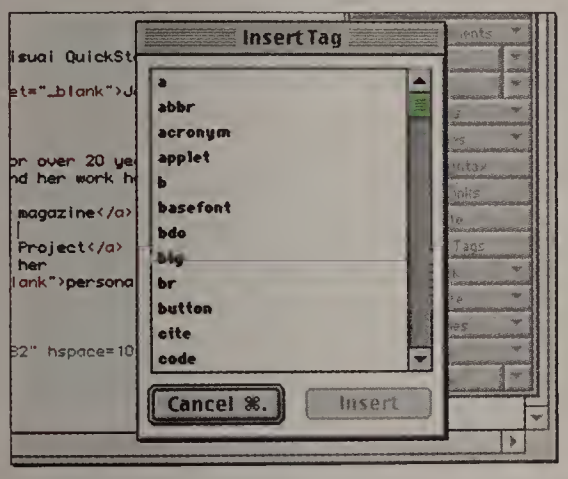
RATING: ♦♦♦♦ **PROS:** Support for 24-bit audio; strong controller-data editing. **CONS:** No drag-and-drop support; copy protection. **COMPANY:** Opcode Systems (650/429-2400, www.opcode.com). **LIST PRICE:** $495.

BBEdit 5.0

STILL THE STANDARD IN HTML EDITORS

ASK WEB-SITE DESIGNERS WHAT programs they use, and you'll get many answers. But the end of the reply is always the same: "Oh, and BBEdit." Bare Bones Software's BBEdit, which started life as a text editor for programmers, has become the de facto standard for editing HTML code on the Mac.

BBEdit 5.0, the latest version of the software, adds a Web Safe Colors palette, two new tagging functions, and a handful of minor improvements to existing features. The enhancements are nice, but none are must-haves. BBEdit



Bare Bones HTML BBEdit 5.0's new context-sensitive Tag Maker tool displays the valid tags you can add to your page.

remains an important tool for Web developers, but the new release offers less than you might expect from a major version-number upgrade.

Coding Power

Adobe PageMill, GoLive CyberStudio, and other Web authoring programs let you build pages using the same kind of WYSIWYG interface you find in a page-layout program. In BBEdit, you build pages by writing HTML code. This may prove daunting for users accustomed to WYSIWYG tools, but direct HTML coding gives you tremendous power over the appearance of pages.

BBEdit's new context-sensitive tagging tools, Tag Maker and Edit Tag, are primarily useful for HTML novices. Tag Maker lists the HTML tags and attributes that are valid in the cursor's current position. For example, if you're editing the document's header section, Tag Maker displays the tags you can use there. The Edit Tag tool opens a window showing all permitted attributes for a selected tag.

The new version also features an HTML-syntax checker that inspects your document for errors, using specifications set in official HTML standards. This function can be frustrating to use, though, because most Web pages do not have 100 percent valid HTML. For example, GoLive CyberStudio adds program-specific tags for internal display purposes. If you then check the page's syntax with BBEdit, the syntax checker reports those tags as errors. It also reports common browser-specific tags (such as Netscape's **<layer>** tag) as errors, along with such attributes as **name** on the **<img>** tag. The latter is not standard HTML, but JavaScript image rollovers require it.

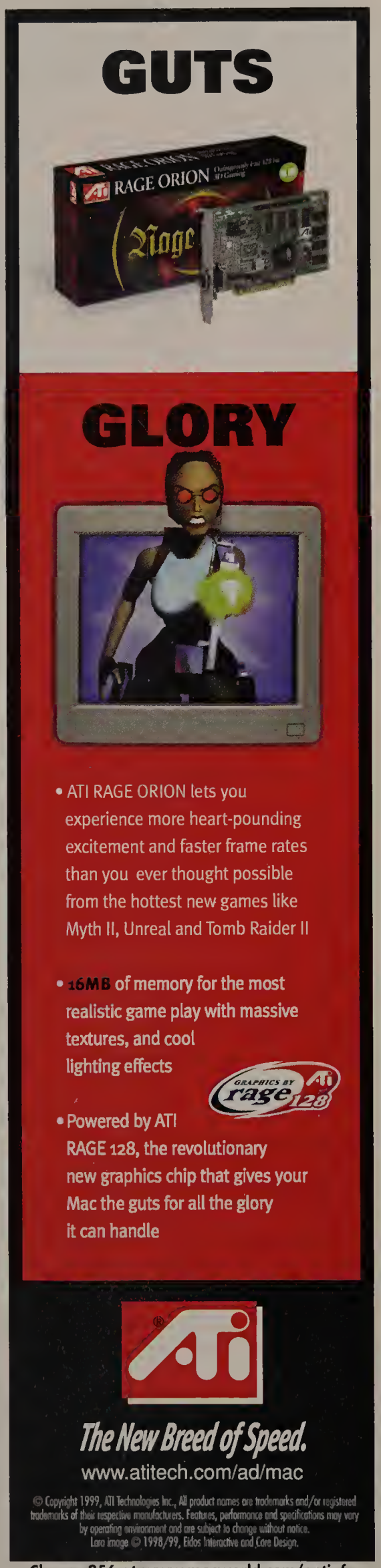
The typical page will generate so many errors that you'll be tempted to stop using the syntax checker entirely. Bare Bones should consider adding a parser to account for these common HTML variations. On the positive side, the upgrade fixes a bug in BBEdit 4 that caused the syntax checker to claim that JavaScripts contained invalid HTML. However, there's still no syntax checking for JavaScript or style sheets, another much-needed feature.

BBEdit 5.0 has a few bugs of its own. When you check the syntax of a buggy HTML file, clicking on one of the messages in the error window should take you to the problem line of code. However, if the page has soft-wrapping turned on, you are sent to a different line altogether. Also, Edit Tag adds certain attributes to HTML tags when they're not requested, and it sometimes doesn't use default attributes correctly. Bare Bones has acknowledged these and other problems and is working on a bug-fix.

Macworld's Buying Advice

If you develop Web pages and you don't have BBEdit, get version 5.0. But if you already own BBEdit 4.5, there's no compelling reason to upgrade.—DORI SMITH

RATING: ♦♦♦♦ **PROS:** Speedy, powerful HTML editor. **CONS:** Some bugs; a few enhancements don't justify a major version-number change. **COMPANY:** Bare Bones Software (781/687-0700, www.barebones.com). **LIST PRICE:** $119.



Choose 256 at www.mocworld.com/getinfo

It is a good day to die.

STAR TREK THE NEXT GENERATION®

KLINGON HONOR GUARD™

Plunge into the heart of the Klingon Empire in this fast-paced 3D shooter based on the ground-breaking Unreal™ engine. Honorless forces have conspired to throw the High Council into mayhem, and your skill will be tested to the limits by the relentless challenges and brutal foes that await you. Fulfill your blood oath as an elite member of the Klingon Honor Guard and strike to the root of the dark conspiracy. Blood is the price of dishonor. **Sharpen your Bat'leth, it is your duty to exact this price for the glory of the Klingon Empire.**

Duty **Honor** **Glory**

MICROPROSE
www.microprose.com
Westlake INTERACTIVE

Paramount

Available at your local retailer, or visit the GT Interactive online store:
http://www.gtstore.com or call 800/229-2714

©1998 MicroProse, Inc. All Rights Reserved. STAR TREK: THE NEXT GENERATION® & ©1998 Paramount Pictures. MICROPROSE is a registered trademark and *Klingon Honor Guard* is a trademark of MicroProse, Inc. or its affiliated companies. All Rights Reserved. Distributed and published by MacSoft, an affiliate of GT Interactive Software Corp. All other trademarks are the property of their respective companies. Many Klingons died honorably during the making of this game.

MacSoft®
An affiliate of GT Interactive Software Corp.
www.wizworks.com/macsoft

Choose 29 at www.macworld.com/getinfo

OrangePC 627

PC ON A CARD, IN A MAC

NEED TO USE WINDOWS SOFTware regularly, but not often enough to justify buying a standalone PC? If you're not impressed with the performance of software emulators, Orange Micro's OrangePC 627 card might be just what you need. This minimalist-PC–on-a–PCI-card uses your Mac and peripherals to create a Windows 98 alter ego inside your Mac (it can also run Windows 95 and NT 4.0).

The 627 is not a screamer. Although it ran the Business Winstone 98 benchmark more than twice as fast as the Windows-emulator software we tested—Insignia Solutions' SoftWindows 98 5.0.4 and Connectix's Virtual PC 2.1.1 (see *Reviews*, February 1999)—it was less than half as fast as our baseline 300MHz Intel Celeron–based PC (see "No Match for the Real Thing"). That said, the 627 is perfectly adequate for run-of-the-mill productivity tasks such as word processing, although it can be sluggish with state-of-the-art games. And because it's hardware running Windows, the 627 doesn't suffer from the compatibility problems that plague SoftWindows.

ARNOLD TIOSEJO

As do software emulators, the 627 uses large Mac files as virtual hard disks, allowing you to keep multiple configurations or operating systems handy. You can share data between the Mac and Windows environments via the Clipboard or via shared Mac folders that the PC sees as remote volumes. But although the card can use the Mac's built-in Ethernet hardware, it needs its own IP address. And unless you have two monitors, switching back and forth between the Windows and Mac screens can be cumbersome; you can't run Windows in a window, as you can with an emulator.

The OrangePC 627 uses a 200MHz, MMX-capable IDT WinChip that resides in a ZIF socket, so you can upgrade it to a more capable processor. When we installed a 300MHz AMD K6-2 on the OrangePC, performance increased perceptibly. And the card's RAM is on a single 16MB DIMM that you can replace with a larger DIMM. But adding RAM and using a faster processor won't boost video performance appreciably. Unlike Orange Micro's high-end 660 card, which comes with 4MB of dedicated VRAM, the 627 uses part of its main RAM for video memory.

Macworld's Buying Advice

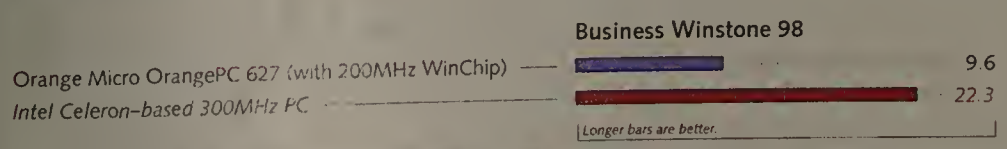
While the OrangePC 627's performance is lackluster compared with that of a "real" PC, the card is significantly less expensive. If you need something that's faster than an emulator, but will settle for less performance than a contemporary PC can offer, the 627 is a good solution.—STEPHAN SOMOGYI

RATING: ♦♦♦ **PROS:** Faster than emulation; reasonable price/performance ratio; RAM and CPU are upgradable. **CONS:** Slower than a typical PC; too slow for many PC games. **COMPANY:** Orange Micro (714/779-2772, www.orangemicro.com). **LIST PRICE:** $559.

Macworld LAB TEST

No Match for the Real Thing

Best result in red. *Reference system in italics.* Business Winstone 98 scores are absolute numbers.



Behind Our Tests For more information on the ZD Benchmark Operation's Business Winstone suite, see www.winstone.com. For detailed information on our tests, see www.macworld.com/tests/.—Macworld Lab testing supervised by Jeffy Milstead

GUTS

GLORY

• ATI XCLAIM VR 128 adds multimedia muscle to your Mac with a full range of capabilities including 2D, 3D, and video acceleration

• Capture video or still images and add them to emails or web pages

• Watch TV on your Mac with really cool features you won't find on any TV

GRAPHICS BY ATI rage 128

• Powered by ATI RAGE 128, the revolutionary new graphics chip that gives your Mac the guts for all the glory it can handle

The New Breed of Speed.

www.atitech.com/ad/mac

© Copyright 1999, ATI Technologies Inc., All product names are trademarks and/or registered trademarks of their respective manufacturers. Features, performance and specifications may vary by operating environment and are subject to change without notice.

Choose 256 at www.macworld.com/getinfo

DARK VENGEANCE™

In a **dazzling 3D world** that dwarfs everything except your burning hatred, you must master three **radically different styles** of combat. **Three unique paths**. More than 30 weapons. Reap retribution in **32-player deathmatches**. Immersed in incredible **lighting and particle FX**, you have three golden chances to make the bastards pay. **Treasure them.**

vengeance will be yours. a bold new odyssey of combat and exploration.

Available at your local retailer, or visit the GT Interactive online store:
http://www.gtstore.com or call 800/229-2714

Dark Vengeance™ ©1998 Reality Bytes, Inc. All Rights Reserved. Reality Bytes and the Reality Bytes logo are registered trademarks, Dark Vengeance and the Dark Vengeance log are trademarks of Reality Bytes, Inc. Distributed and published by MacSoft, an affiliate of GT Interactive Software Corp. All other trademarks are the property of their respective companies.

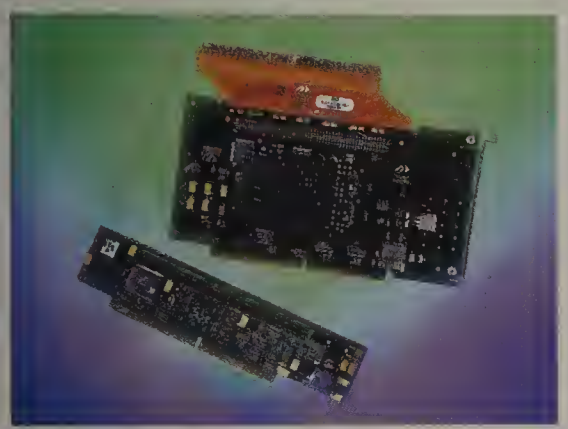
MacSoft®
An affiliate of GT Interactive Software Corp.
www.wizworks.com/macsoft/

Choose 28 at www.macworld.com/getinfo

G3 Upgrade Cards

ACCELERATORS BOOST POWER MACS

BUYING A G3 UPGRADE CARD IS still less expensive than replacing a first-generation Power Macintosh, particularly if you've invested in legacy NuBus hardware that's incompatible with current PCI-based Macs. Two options for upgrading 6100/7100/8100-series Power Macs, Sonnet Technologies' Crescendo G3 266/1MB and Newer Technology's Maxpowr G3 PDS 240/1MB, boost performance dramatically; the only significant



SUZANNE ROADY

Newer's Maxpowr G3 PDS 240/1MB (top) and Sonnet's Crescendo G3 266/1MB (bottom).

differences between the two cards lie in their architecture and fit-and-finish.

Each accelerator plugs (with some difficulty) into the slot occupied by the stock VRAM or AV display card in the 7100 and 8100; an optional adapter lets you continue using the stock video card. The Maxpowr includes a sturdy metal caddy, whereas the Crescendo's flimsier caddy forces you to bend the video-connector bracket. Unfortunately, the location of this connector prevented us from using our AppleVision 750 monitor with the Crescendo (this isn't a problem with the 6100 version, which doesn't use a caddy).

The Crescendo's CPU speed is tied to the bus speed of the host computer; in a 7100/80, it runs at 260MHz. The Maxpowr runs at 240MHz regardless of the computer it's installed in. But because the Maxpowr's backside cache is 19 percent faster than the Crescendo's, the Maxpowr's graphics score is 7 percent higher (see "Photo Finish"). Overall, the Maxpowr runs neck and neck with the Crescendo.

Macworld's Buying Advice

If you have a Power Mac 6100, you'll find either card a solid performer. For 7100 or 8100 owners who need to use the video card that came with their machine, the Maxpowr offers better placement of the video connector and a sturdier feel than the Crescendo.—JEFFY MILSTEAD

Crescendo G3 266/1MB

RATING: ♦♦♦½ **PROS:** Good performance. **CONS:** Difficult to install in 7100 or 8100; monitor connector can be problematic. **COMPANY:** Sonnet Technologies (949/261-2800, www.sonnettech.com). **LIST PRICE:** $559.

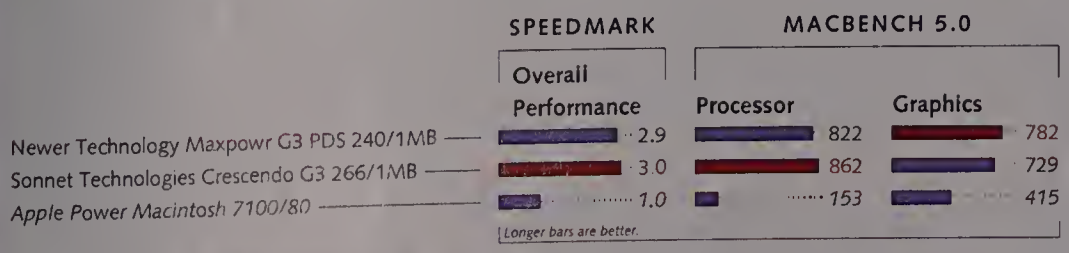
Maxpowr G3 PDS 240/1MB

RATING: ♦♦♦♦ **PROS:** Faster backside cache; better compatibility with legacy NuBus cards. **CONS:** Difficult to install in 7100 or 8100. **COMPANY:** Newer Technology (316/943-0222, www.newertech.com). **LIST PRICE:** $649.

Macworld LAB TEST

Photo Finish

Best results in red. *Reference system in italics.* **SpeedMark scores are relative to that of a Power Mac 7100/80, which is assigned a score of 1.0. MacBench 5.0 scores are relative to those of a Power Mac G3/300, which is assigned a score of 1,000 in each test.**



Behind Our Tests For detailed information on our tests, see www.macworld.com/tests/.—Macworld Lab testing supervised by Gil Loyola

GUTS

GLORY

- ATI NEXUS 128 delivers fast, true color, ultra high res graphics when using Photoshop or other 2D and 3D design applications
- 32MB of memory lets you manipulate 3D objects with realistic textures and lighting in resolutions up to 1900 x 1200
- Powered by ATI RAGE 128, the revolutionary new graphics chip that gives your Mac the guts for all the glory it can handle

GRAPHICS BY ATi rage 128

The New Breed of Speed.
www.atitech.com/ad/mac

© Copyright 1999, ATI Technologies Inc., All product names are trademarks and/or registered trademarks of their respective manufacturers. Features, performance and specifications may vary by operating environment and are subject to change without notice.

Choose 256 at www.macworld.com/getinfo

VectorWorks—
Technology With Next-Gen

VectorWorks brings you the best of all design worlds—the power and highly specialized solutions of an expensive industry-specific CAD program, and the flexibility and affordability of a general-purpose CAD program.

VectorWorks' cutting-edge technology, improved power and performance make it our most substantial upgrade ever. No other CAD program offers so much for so little.

MiniCAD® Vectorworks®
Object-Based CAD for Professionals

www.diehlgraphsoft.com

Shipping NOW!

Merging Proven CAD
ration Object-Based Design.

Choose 46 at www.macworld.com/getinfo

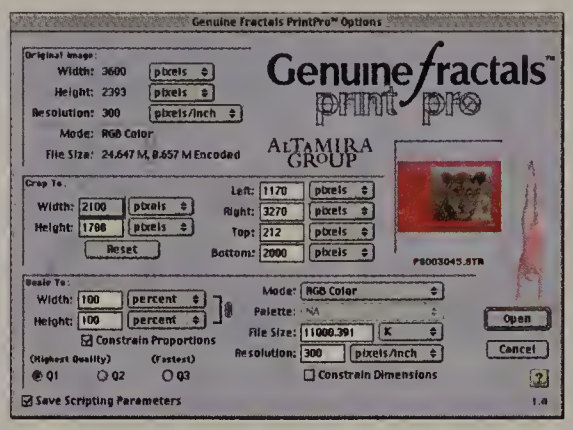
Genuine Fractals Print Pro

FAST, FLEXIBLE IMAGE-COMPRESSION PLUG-IN

JPEG IMAGE COMPRESSION IS fast and efficient, but print-media pros avoid the format because of its tendency to add artifacts to images. So how do you squeeze that eye-popping nature scene down to a manageable size without losing the rich colors and crisp detail? The best solution is Altamira Group's Genuine Fractals Print Pro, an Adobe Photoshop plug-in that uses fractal geometry to compress images with little or no apparent loss of quality. Better yet, it lets you decompress images well past their original dimensions without compromising quality.

An upgrade to Genuine Fractals 1.0, Print Pro adds a lossless-compression option to version 1.0's "near-lossless" technology. Print Pro also addresses Genuine Fractals' major weaknesses with faster performance, better memory management, and support for CMYK and Lab images. (Altamira has also released Genuine Fractals 2.0, a $159 version that offers all the features of Print Pro except CMYK and Lab support.)

Genuine Fractals Print Pro works best with high-quality digital images captured at 15MB to 25MB. Instead of using version 1.0's painfully slow export module to compress a file, you use Photoshop's Save As command and select Genuine Fractals' STN compression format from the standard pop-up list. Not only is this more transparent than in the previous version but it's also much faster.



Room to Grow Genuine Fractals Print Pro lets you crop and scale an image as you decompress it.

The program's lossless encoding retains all image data while offering a compression ratio of slightly better than 2:1. Near-lossless encoding offers a higher ratio of about 5:1 but sacrifices a small, generally imperceptible amount of image data. To decompress an STN file (or an FIF file from version 1.0), you select it using Photoshop's File Open command. The plug-in then displays a dialog box with an image preview. You can crop or scale the image or choose from three options for balancing decompression speed with image quality.

If you scale the image to its original size, decompression is reasonably fast. If you enlarge the image, however, prepare to wait—and don't forget to stock up on RAM. The new version improves on its predecessor by using virtual memory and disk caching, but you'll still need lots of RAM if you want to convert a 20MB photo into a 100MB poster.

Macworld's Buying Advice Genuine Fractals Print Pro delivers the same image-compression and -enlargement capabilities as its predecessor in a faster, more flexible package. It's ideal for any print-media professional who frequently transmits high-resolution images.—STEPHEN BEALE

RATING: ★★★★½ **PROS:** Fast; lossless and lossy image compression; CMYK support. **CONS:** RAM-hungry. **COMPANY:** Altamira Group (818/556-6099, www.altamira-group.com). **LIST PRICE:** $299.

Cross-Platform Migraine?

Told computer tech to migrate. He went South.

Buy Bird Seed

Call HireKnowledge

Which way did he go? Which way did he go? When they were handing out brains, your new PC tech thought they said "trains," so he asked for an empty compartment. And, apparently, he got one. Now that he's enjoying sunnier climes, what are you gonna do? Call HireKnowledge.

Every HireKnowledge temp is rigorously tested and fully guaranteed. Not only will we assess the contents of a candidate's cranial compartment with specialized tests, but we will also work with you to make sure we find the person with the skill set and work ethic your company requires.

At HireKnowledge, we weed out the airheads and the quacks, so you can focus on the substance of your work, confident that your hiring needs are being expertly met.

HireKnowledge℠
Putting Intelligence to Work

1.800.937.3622

www.hireknowledge.com

Baltimore • Boston • Chicago • Dallas • Kansas City • Philadelphia • Providence • San Francisco • St. Louis • New York • Washington DC

Choose 207 at www.macworld.com/getinfo

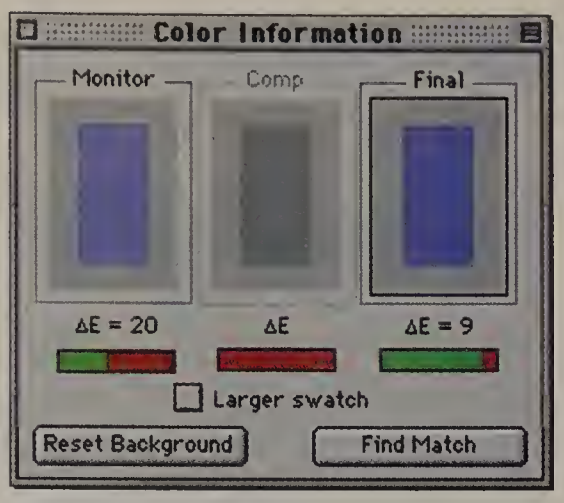
Pantone ColorReady

COLOR MATCHING PLUG-IN

COLOR MANAGEMENT IS A COMPLICated task, and you shouldn't expect an easy solution to getting predictable color output on your monitor or printer. Yet this is the promise of Pantone ColorReady, a set of plug-ins for matching colors in QuarkXPress, Macromedia FreeHand, and Adobe Illustrator. The $139 package enables consistent reproduction of spot and process colors, but its clumsy approach may prove daunting.

ColorReady employs standard ColorSync device profiles along with Pantone Named Color Profiles to identify the color-reproduction characteristics of various monitors and printers. The ColorSync profiles handle process colors, and the Pantone profiles manage Pantone spot colors.

The software, consisting of a QuarkXTension, a FreeHand Xtra, and an Illustrator plug-in, appears in each host program as a small tool bar with three icons. First, you click on the Color Palette icon to select the colors you want to match. Next, click on the Setup icon to choose your monitor, a comping device—such as an ink-jet printer—and a final output device. The third icon opens a Color Information window, which simulates how the color will look on each device. ColorReady assumes you're using a calibrated monitor.



Crystal Ball ColorReady's Color Information Palette simulates how colors will look when printed.

Once you've selected a color, you can modify it or create a new color from scratch. You save the colors in a ColorReady palette and then export them back to the host program. You can save ColorReady palettes in one host program, and then open them in another to ensure that colors print consistently in each.

It sounds easy, but ColorReady requires some extra steps that complicate the process. In QuarkXPress, you must set up your color-management profiles twice—in the host software and in ColorReady. The program's three windows clutter the display and make for clumsy operation as you jump from one to another.

All the tools are here, but a clear, intuitive approach is not. For example, the icons in the main tool bar don't follow the same sequence as the ColorReady workflow. However, ColorReady makes great use of Apple Guide to walk you through the program.

ColorReady is RAM-hungry. Pantone sets the minimum system requirement at 32MB, but we had to allocate 50MB to the host software to get acceptable performance. We also found a conflict between the FreeHand Xtra and Extensis VectorTools: the Pantone software sometimes failed to load unless we removed the Extensis plug-in.

Macworld's Buying Advice If you can wade through ColorReady's myriad palettes, finer adjustments, and extra steps, it *will* produce consistent and predictable color. But some users may balk at the program's byzantine design.—ANDREW SHALAT

RATING: ♦♦♦ **PROS:** Affordable approach to color management. **CONS:** Clumsy interface; RAM-hungry. **COMPANY:** Pantone (201/935-5500, www.pantone.com). **LIST PRICE:** $139.

Yeeeehaaaaw! It's what you'll say when you sign up with or switch to Interland® web hosting. Prices from as little as $19.95 a month. Dual DS-3 connections for extra speed. A whopping eighty megabytes of disc space. Guaranteed 99.9% uptime. 24x7 toll-free support for the wee hours. And pricing with absolutely no hidden charges. You'll be happy, we guarantee it!

Check out our website and discover why more and more people worldwide are trusting their websites to Interland. Whether you're a computer veteran or just getting started, you'll receive the best service, support and technology the industry has to offer. At a price that's right for you. Not to mention a great reseller program. Give us a call today, and let Interland bring you the world.

Pricing From $19.95 per Month

Call Today 1-800-599-0547 (404) 586-9999

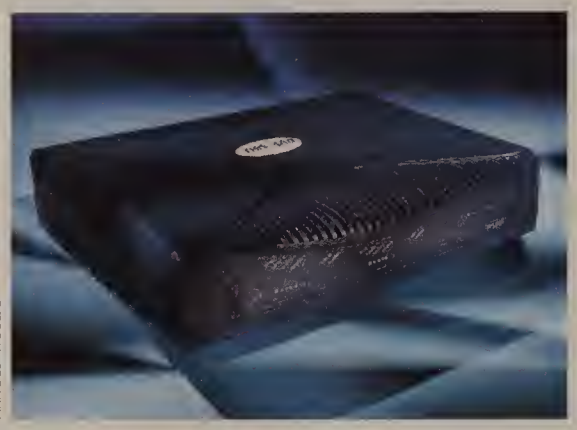
@ Speed. Reliability. Support.
interland®
Web Hosting
www.interland.net

Netopia R2121 Dual Analog Router

ALL-IN-ONE INTERNET-ACCESS SERVER

MULTILINE INTERNET-ACCESS servers for network users abound, but most of them require that you supply external communications devices—either modems or ISDN terminal adapters. The Netopia R2121 Dual Analog Router comes with two 56-Kbps modems built in, making it the simplest Internet-connection gizmo yet. You can add a third (external) modem, for a maximum possible throughput of 168 Kbps, or use the third line to accommodate a dial-in telecommuter. Web-based configuration screens let you get the router up and running in minutes, and a built-in Ethernet hub makes this a completely self-contained SOHO access server.

The back of the exotic-looking Netopia router sports two modem ports; two phone ports, for a phone or fax machine; a serial port, for a third, external modem; a console serial port; and an eight-port Ethernet hub. On the front, lights display the state of the modems, hub, and router. Setup consists of connecting the box to your network and a pair of phone lines, applying power, and running the Web-based SmartStart utility.



ARNOLD TIOSEJO

Dynamic Host Control Protocol and Network Address Translation support let you automatically configure the TCP/IP settings for your hosted computers while using a single dynamically assigned IP address from your ISP.

On-demand Internet routing dials up an ISP on the first modem as users access the Internet; when traffic warrants, the router dials up the second or third modem (if one is attached) to increase bandwidth. Alas, you can configure only basic Internet access via the Web interface; for more-complex configurations, you have to use Telnet and a text-menu interface.

One interesting feature, called SmartPhone, lets you connect analog devices to the Dual Analog Router so they can share analog lines with the modems. If you need to make an analog call with one of these devices, simply picking up the line causes the router to drop one Internet connection so it can accommodate your outgoing call. Other features, such as a full-featured firewall with reverse proxy, call accounting, and prearranged connection schedules, give the router more-advanced capabilities.

The Dual Analog Router performed well during our testing, reaching 168 Kbps with no trouble. The telecommuter feature was hard to get working, however, and the external serial port lacks ISDN support.

Macworld's Buying Advice If you want to get a small office online in a hurry, the Netopia R2121 Dual Analog Router will give you everything you need, in a single, easy-to-configure package.—MEL BECKMAN

RATING: ♦♦♦♦ **PROS:** Web-based administration; built-in Ethernet hub; additional serial port; telecommuter dial-in. **CONS:** No ISDN on third port; complex dial-in configuration. **COMPANY:** Netopia (510/814-5000, www.netopia.com). **LIST PRICE:** $649.

Choose 73 at www.macworld.com/getinfo

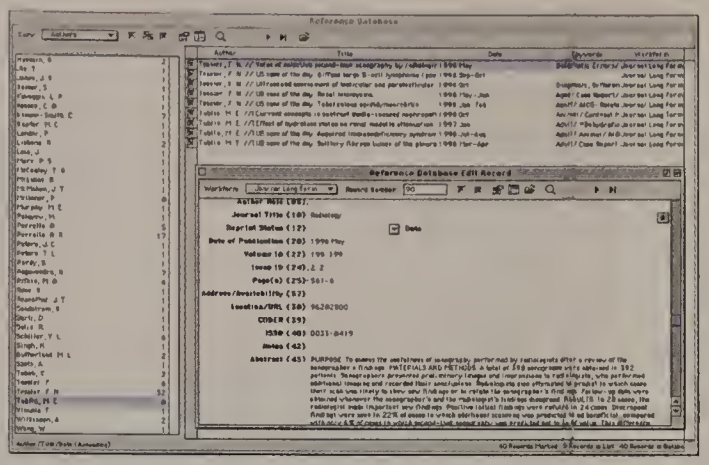
ProCite 4.0

POWERFUL REFERENCE-DATABASE MANAGER

ANYONE WHO'S EVER AUTHORED a research paper will tell you that writing it is only half the battle: you also have to get your references right. Research Information Systems' ProCite 4.02 can't do the writing for you, but it *can* take the drudgery out of copying and formatting references.

Like Niles Software's EndNote 3.0 (see *Reviews*, July 1998), ProCite is a combination reference-database manager and bibliography formatter. ProCite's 45 data fields accommodate any kind of reference work, from journal articles to patent information. You can enter references manually, using templates called *workforms*, or import them from delimited text files or EndNote libraries. Predefined configuration files also let you import tagged reference data from online or CD-ROM–based sources such as MEDLARS and Ovid. Unlike EndNote, ProCite doesn't let you search online reference libraries directly; alas, a companion product that accesses online databases isn't available for the Mac.

ProCite's list view is much more flexible than EndNote's. You can display up to six fields, and you can sort the database by clicking on any column header. An optional pane on the left lists all the authors, titles, journals, or keywords in your database (see "Reference List"). Another feature lets you assign any subset of records to a group, so you don't have to create a new database for every project.



Reference List Clicking on any name on the left displays all of that author's references.

Like EndNote, ProCite includes a software module that lets you insert citations into a document as you're writing, but only ProCite lets you search for references without leaving your word processor. When you're finished, you can format the in-text citations and generate a bibliography based on one of 300-plus predefined styles. If the predefined styles don't include the style of the publication you're writing for, you can create a new style.

Unfortunately, ProCite's plug-in is compatible only with Microsoft Word 6 and 98—if you use any other word processor, you have to cut and paste references into the document and rely on your word processor to format them and create the bibliography. And you're out of luck if you have an iMac without an add-on floppy drive: ProCite ships only on floppy disks (although the company says you can request a CD-ROM version).

Macworld's Buying Advice ProCite and EndNote each sport features the other lacks, but ProCite 4.02's strengths as a database manager make it an excellent choice for anyone who has to work with a large number of references.—FRANKLIN TESSLER

RATING: ♦♦♦♦ **PROS:** Flexible list view; can assign references to groups. **CONS:** Ships only on floppies; works directly only with Microsoft Word. **COMPANY:** Research Information Systems (760/438-5526, www.risinc.com). **LIST PRICE:** $396.

News travels fast; MacWEEK.com moves faster.

MacWEEK.com

Mac news, commentary, up-to-the-minute stock quotes and Mac the Knife!
Every day at http://www.macweek.com.

MacWEEK: Telling the Mac story since 1987

Astra 1220U

LOW-COST USB SCANNER YIELDS HIGH-QUALITY IMAGES

SUZANNE ROADY

WITH ITS CONVENTIONAL flatbed design and opaque beige exterior, the Umax Astra 1220U might look out of place next to a Bondi-blue iMac. But the colors that really matter are the ones that show up after you've captured an image, and here the USB scanner does a good job—especially considering its $150 price tag.

The Astra 1220U—also available in a $180 SCSI version—isn't the cheapest scanner on the market. But with 600-dpi optical resolution and 30-bit color depth, it delivers better image quality than do its bargain-basement rivals, which typically offer 24-bit, 300-dpi image capture. (Umax advertises the 1220U as a 36-bit device, but it actually captures 30 bits and then uses hardware tricks to boost the color depth.)

We used the Astra 1220U to scan a standard test image at 300 dpi, then printed the image with no modification on an ink-jet and dye-sublimation proofer. The scanner did an excellent job of capturing fine detail, and except for slightly saturated reds, colors matched up well with the original. Line art scanned at 600 dpi also reproduced well.

Umax's VistaScan software, included as both a stand-alone application and an Adobe Photoshop plug-in, puts an easy-to-use interface on the essential image-capture features. The program's Beginner mode comes close to offering a one-button scan operation: you just pick a destination (such as an image file or a text file for OCR), perform a preview scan, and let VistaScan do the rest. You can also send output directly to a printer.

VistaScan's Advanced mode offers full control over resolution, scaling, bit depth, and other scanning parameters. You can apply transfer curves to compensate for color shifts or use a descreening function to remove moiré patterns from halftones. The only complaint we have is that the software makes it a little tricky to save images under user-supplied file names.

The scanner is bundled with Adobe PhotoDeluxe 1.0 for image-editing, Caere's OmniPage LE for text recognition, and Umax's own Presto Page Manager for launching scanning applications.

Macworld's Buying Advice This is a lot of scanner for the money—and therein lies the rub for many iMac owners. With its high resolution and extra bit depth, the Astra 1220U produces hefty files on a computer that sports just 32MB of RAM in its base model; you may find yourself running out of memory as you play with those great-looking images you've captured. But if you're willing to limit yourself to small images—or boost your iMac's RAM—you'll find this a great scanner for the price.—STEPHEN BEALE

RATING: ♦♦♦♦ **PROS:** Good image quality. **CONS:** Not a true 36-bit scanner; may be overkill for iMacs. **COMPANY:** Umax Technologies (510/651-4000, www.umax.com). **LIST PRICE:** $150.

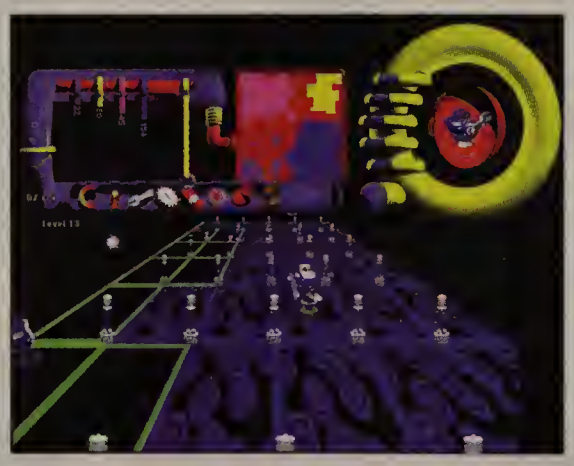
Gridz 1.2

FRENETIC GAME NOW NETWORKABLE

STROLLING THROUGH *MACWORLD*'S venerable Game Hall of Fame, I noticed that the spot reserved for the 1997 Arcade winner, Green Dragon Creations' Gridz, was now empty. Perplexed, I questioned a passing docent and was informed that the exhibit featuring this highly entertaining real-time strategy game was being updated to reflect Gridz's new networking capabilities. Flashing the vermilion card issued to all *Macworld* contributing editors, I was ushered into The Vault to peek at the new and improved Gridz.

At first glance, Gridz 1.2 is little changed from the delightful game that won our heart a year ago (see *Reviews*, November 1997). It's still happiest with at least 16MB of RAM, and it's still deceptively simple. You stake out territory on a large grid by planting nodes where the grid lines intersect, and then you dispatch Builder robots to activate those nodes. When four nodes that mark the corners of a rectangle are activated, you claim that area of the grid.

While you're engaged in this digital exercise in manifest destiny, your opponents likewise claim territory. The real fun begins when you dispatch Striker and Hacker robots. The Strikers' job is to destroy opposing robots; Hackers live to demolish enemy nodes, which you can then claim. The more territory you grab, the more energy you generate, allowing you to build additional robots more quickly. You can capture token rings and redeem them for more-powerful robots at the end of each round.



Gridz Iron Our blue territory is growing quite nicely, thanks to our superior Striker robots.

The single-player–only Gridz 1.0 was a hoot, but its computer opponents were just a bit dim: it didn't take long to figure out that if you bought the most powerful Striker you could afford, you easily outmatched your computer opponents. The new version addresses the problem in two ways. In single-player games, you can now choose to play against smarter enemies. And, of course, networking brings the greatest challenge of all. Your not-too-bright computer opponents may not realize that the best offense is a good defense, but the weasel in the next cube who refuses to refill the coffeemaker after drinking the last cup surely does.

The Gridz CD-ROM ships with a single serial number, but you can get three additional serial numbers free from Green Dragon's Web site. Gridz supports up to eight players and can be played across an AppleTalk network or on the Web via TCP/IP. I found the game very responsive—and a heck of a lot of fun to play—on a four-Mac 10BaseT Ethernet network.

Macworld's Buying Advice Gridz is a wonderful single-player game for those who enjoy adrenaline-driven, real-time strategy games, and it's even more fun against human opponents. Gridz richly deserved its place in the *Macworld* Game Hall of Fame. It still does.—CHRISTOPHER BREEN

RATING: ♦♦♦♦ **PROS:** Furious game play; networkable. **CONS:** Slightly stiff RAM requirement. **COMPANY:** Green Dragon Creations (601/473-4225, www.greendragon.com). **LIST PRICE:** $35.

iMac™, therefore iScan. with Agfa.

Introducing the USB SnapScan 1212u *in blue!*

Agfa's commitment to the Mac community continues with the introduction of the latest product in the award-winning SnapScan line—the 1212u *in blue!*

Once again, Agfa delivers the tools that delight creative minds. The 1212u *in blue* not only looks great, it's built with the quality you expect and is exceptionally easy to use.

Style. Creativity. Quality.
From Agfa.

SnapScan 1212u *in blue* features:

- USB interface
- 600 x 1200 optical dpi, 9600 x 9600 enhanced
- 36-bit color depth
- Fast, 1 MB/sec. scanning

Also available in off-white.

$129.95 (MSRP 1/99)

www.agfahome.com

AGFA Agfa
The complete picture.

The brands you trust. From Agfa.

SnapScan
ePhoto
DuoScan
AgfaJet

Available from:

Club Mac • ComputerWare • Fry's • Mac Connection • Mac Mall • Mac Warehouse • Mac Zones • NECX • Tech Squared

AGFA and the Agfa rhombus are [illegible] AG. All other trademarks and tradenames are property of their respective owners.

Choose 158 at www.macworld.com/getinfo

(Mac® Sold Separately)

Apple® Power...
ViewSonic® on top!

When size matters.

If you're looking for more screen real estate, but your desktop is cramped, we've got your upgrade. The new ViewSonic PT795 19" (18.0" viewable) performs like a 21" (various viewable) monitor while taking up little more space than a typical 17" (various viewable) model.

There's no compromise on screen quality. The PT795 is the first 19" PerfectFlat™ SonicTron® monitor. The PerfectFlat screen provides the user a distortion-free image especially while working with graphics. Because the PT795 incorporates no curved surfaces to reflect overhead lights, the PerfectFlat screen minimizes glare and eliminates image distortion.

The PT795 shines where high performance is a must–graphics, pre-press, desktop publishing, document imaging, and other media. It provides a super fine 0.25–0.27mm variable AG pitch for exceptionally sharp, crisp displays, SuperContrast™ screen, a flicker-free resolution of 1,600 x 1,200 with a refresh rate of 87Hz and a maximum resolution of 1,920 x 1,440. And, ViewMatch® Color Control literally makes screen-to-printer color matching a snap.

Equipped with four accessory ports, the PT795 allows the use of USB compliant peripherals without having to open or reboot your Mac. TCO '99.

For more information call ViewSonic at 800-888-8583 and ask for agent 91394, or visit our website at: www.viewsonic.com/mac

(909) 869-7976 Fax: (909) 869-7958 • Specifications subject to change without notice. Copyright © 1999 ViewSonic Corp. • All rights reserved. Corporate names and trademarks stated herein are the property of their respective companies. Apple, Mac and the Apple logo are registered trademarks of Apple.

USB UNIVERSAL SERIAL BUS

ViewSonic on top™

www.viewsonic.com

iMac

THE NEW POWER MAC G3 BREAKS THE

Envy

MOLD IN DESIGN, SPEED, AND FEATURES

While Apple's been getting kudos for fighting the beige-box blues with the iMac, professional users have been staring at their plain Power Mac G3 boxes and wondering when *they'll* be able to use a computer that doesn't just *think* different, but looks it.

Their wait is over.

Decked out in blue and white plastic, Apple's new Power Mac G3 series promises to add some color to the lives of professional Mac users by combining iMac style and affordability with impressive power and leading-edge connections.

These new Power Mac G3's may be minitowers with external monitors, but they're still undeniably related to the iMac. They use the same polycarbonate plastic that makes up the iMac's shell—but in a darker shade of blue. And their daring curves, translucent surfaces, and two-tone color scheme are definitely derived from the iMac school of design.

But the story of these new Macs is hardly one of style over substance. Beneath the striking design is an impressive update to the Macintosh hardware architecture that will deeply affect the way you use your Mac in the next millennium—in a *good* way.

PHOTOGRAPHY BY ARNOLD TIOSEJO

by Allyson Bates

Good-bye, Beige Box

Once you get past the striking blue and white plastics, the most noticeable feature of the new chassis is the addition of four curved handles on the corners, which make this Mac less unwieldy when you need to move it. Its ribbed white sides sport a blue Apple logo with a bold *G3* silk-screened onto the metal case, just visible behind it.

Unfortunately, some of Apple's more questionable iMac design elements are also a part of its big brother. For example, while the new Power Mac G3 does not come with a floppy drive (no surprise there), what most configurations are really missing is an Iomega Zip drive, currently available in only one of Apple's standard configurations. And then there's the compact iMac keyboard and ergonomically dubious round iMac mouse, both of which come standard with these models.

Promising Connections Aside from the flashy colors and a few curved corners, the biggest change on the new Power Mac series is the way you hook up peripherals. Some foreign ports have taken the place of the historic, and quickly becoming archaic, Mac serial (printer and modem) ports: USB and the much-anticipated FireWire.

As with the iMac, the new Power Mac G3 offers two USB ports on a single bus, for peripherals such as keyboards and digital cameras. This replacement for both Mac serial and ADB (Apple Desktop Bus) ports is faster and much more flexible than those old technologies (see "The USB Connection," October 1998).

But unlike the iMac, which doesn't offer any high-speed means of connecting external devices, these new Macs also include two FireWire ports. FireWire is an impressive new connection technology that makes its debut on these new G3 Macs and will probably appear on all future Power Macs as well. These two new FireWire ports replace—and are much faster than—the SCSI port on the back of your current Mac (see the sidebar, "So Long, SCSI? FireWire Arrives").

The arrival of FireWire spells the end for built-in SCSI on the Mac. If you want to use SCSI hard drives with these new Power Macs, you'll need to buy a PCI SCSI card. (The top-of-the-line Power Mac G3 model comes standard with both a 9GB Ultra II SCSI hard drive and a PCI SCSI card.) For users of SCSI devices who need lots of PCI slots, that's bad news—the migration of SCSI off the motherboard means you'll need to fill a slot if you want to keep using your SCSI devices.

Although these Macs have abandoned serial ports and SCSI, they haven't quite given ADB the boot yet. There's still one ADB port on the back of the new Power Mac G3, meaning you can squeeze a little extra life out of older input devices. So if you hate the new, round mouse, you can keep your old one, at least for now.

Open Sesame In addition to the colorful exterior, the new Power Mac G3 design offers some impressive high-end features. These new G3's are by far the most easily accessed (and upgraded) Macs we've ever seen. Just pull on the small round handle on the side of the tower, and the entire side of the computer opens up. The Mac's motherboard is mounted on that surface, giving you easy access for upgrading RAM or installing PCI cards. And unlike Macs of the past, the new G3's don't have to be turned off before you can open the door and show off what's inside.

Inner Beauty

A computer targeted at professionals and high-end consumers stands or falls based on its performance and price. And what Apple's got in store behind that white side door is clearly a step in the right direction.

Mighty Megahertz Of course, the heart of these new G3's is a G3 processor. Apple offers three different processor speeds in these new models: 300MHz, 350MHz, and a new speed record for Apple, 400MHz.

These new Macs also offer a 100MHz system bus instead of the 66MHz bus of previous G3 desktop models. According to preliminary tests run by Macworld Lab, the new Power Mac G3/400 offers 32 percent faster CPU performance, 52 percent faster disk speed, and a whopping 95 percent faster graphics speed than the old top of the line, the beige Power Mac G3/300.

More Memory When it comes to RAM expansion, these Macs excel. If you feel the need to max out your RAM, you can—each slot can handle DIMMs up to 256MB, meaning the upper limit for RAM is an astonishing 1GB. Hard-core Adobe Photoshop users, take note.

However, these new RAM slots do make one compromise: compatibility with earlier Macs. The new Power Mac G3's use the same PC100 RAM that the iMac uses. PC100 RAM is usually cheaper, since it's also used on Wintel-based PCs—but it's incompatible with previous Mac RAM types.

3-D Power At one time, a fast graphics accelerator was considered an expensive add-on, but an ATI Rage 128 graphics card comes standard on all new G3's. The Rage 128 supports resolutions up to 1,900 by 1,200 pixels and up to 24-bit color. Because the card uses SDRAM, a different type of video RAM than SGRAM, which was found on previous models, these cards are less expensive. The card's Rage 128 chip gives these new systems 3-D power for graphics-intensive games and other 3-D applications.

The card fits into a high-speed PCI slot—it runs at 66MHz, as opposed to the traditional 33MHz bus speed of the Power Mac G3's three other PCI slots.

The Three-Slot Shuffle

Not counting the 66MHz PCI slot, which houses the graphics card, these new G3 Macs offer three general-purpose PCI slots. But several technologies commonly placed on PCI cards are now built in or available as options that don't use up slots. For example, you won't need a Fast Ethernet card because the system comes with 10/100BaseT Ethernet. MPEG-2 decoding—necessary if you want to watch DVD movies on your Mac—is available as an optional daughtercard that plugs into the system's video card, and therefore doesn't require an additional slot. And, of course, the graphics card itself goes into that special fourth slot.

continues on page 72

INSIDE THE NEW G3

A PCI Slots (shown with two cards installed): All three slots are free, except in the 400MHz configuration, which includes a preinstalled SCSI card.

B PCI 66MHz Slot: This slot is used by the built-in ATI Rage 128 graphics card.

C Easy Access: The motherboard is mounted on the side door, which swings open for quick installation of RAM, PCI cards, and the like.

D DIMM Slots: Four easily accessible RAM slots make it easy to ramp up your memory to 1GB. The switch to PC-standard RAM will make memory upgrades less expensive and more readily available.

E G3 Processor: The PowerPC chip, running at speeds of 300MHz, 350MHz, or 400MHz, is housed in a ZIF (Zero Insertion Force) socket.

F Expansion Bays: There is room for three internally accessible devices (including a built-in hard drive) and two externally accessible devices (including a CD-ROM drive, a DVD player, or an Iomega Zip drive).

So Long, SCSI? FireWire Arrives.

by Henry Bortman

The iMac introduced Mac users to USB, a simple and powerful new way to connect peripherals to your Mac. But USB is only half the story: it's faster than the old Mac serial and ADB ports, but not a suitable replacement for the SCSI port that's been standard on the back of every Mac up till now. Enter FireWire, the new connection technology that makes its debut on the new Power Mac G3's and combines USB's simplicity with blazing-fast speed.

USB is great for connecting keyboards, mice, and joysticks (and perhaps even slow disk drives or printers) to your Mac, but when it comes to sheer speed, USB is no replacement for SCSI. When you need to move lots of data in a hurry—for example, if you want a really fast hard drive—FireWire is the answer. Boasting a combination of speed, ease of use, and configuration flexibility, FireWire is destined to become the high-performance standard for connecting computers, digital camcorders, digital VCRs, DVD-ROM drives, high-speed hard drives, printers, and even High-Definition TV sets.

From Apple with Love

FireWire was invented at Apple and approved as an industry standard in 1995. Most companies that produce FireWire-compliant devices don't need a license from Apple, but no one can use the Apple-trademarked FireWire name without paying a licensing fee to Apple. That's why just about everybody but Apple calls FireWire "1394," the name it was given by the IEEE, an international standards body.

So if Apple came up with the idea (and has the market cornered on the cool moniker), how come PC vendors such as Compaq managed to get FireWire into their PCs before Apple got it into the Mac? Good question.

Actually, Apple got *support* for FireWire into the Mac OS before Microsoft got it into Windows, and has offered a FireWire PCI card since April 1998. FireWire just hasn't become standard on new Macs until now.

So Long, SCSI

FireWire shares many of USB's best features, meaning it'll be a big improvement over SCSI in terms of ease of use. FireWire devices are hot-pluggable, so you can connect and disconnect them even when your Mac is running; there's no need to turn everything off just to add or remove a device, as you must with SCSI.

FireWire's connectors are simple to use: they don't have the clips or thumbscrews typical of SCSI connectors (see the illustration "Make the Connection"). To add a FireWire device, you just plug in the connector; to remove it, you squeeze the connector slightly and pull it out.

FireWire also doesn't force you to worry about sticking terminators on the end of a chain or setting device IDs. If you've spent much time working with SCSI drives, scanners, and the like, you know what a pain it can be to flip switches, push little tabs, or rotate thumbwheels to ensure that no two devices have the same ID. FireWire devices have unique device IDs, too, but FireWire automates much of the hassle: when you plug in a new device, a FireWire bus reconfigures *itself*, assigning new IDs as necessary.

Device-a-Palooza You can connect up to 63 devices to a FireWire bus, a big improvement over SCSI, which is limited to 7 devices. While that 63-device limit might seem like an embarrassment of riches to most people, it's not even really the upper limit. If you add a *bridge* to a FireWire bus, it divides the bus into multiple *segments*, each of which can support 63 devices.

FireWire is also more flexible when it comes to how you connect your devices. SCSI requires that you string all the devices together in a chain. With FireWire, you can connect up to 16 devices in a chain—but you don't have to link all your devices in one continuous chain. That's because unlike SCSI, FireWire

JOHN HERSEY

allows *branching*. For example, imagine a FireWire external hard drive with three ports. You use one port to connect the drive to the chain leading back to your Mac, and another to connect more devices down the chain. But you can also connect additional devices to the third port, creating a second branch if you want to spread out your peripherals in several directions simultaneously.

Out on a Limb Not only can a FireWire chain branch out in different directions, but it can also go for long distances. The SCSI on the back of your Mac can barely take you to 6 meters, whereas a FireWire segment can be as much as 72 meters long (if you're using an Ultra 2 SCSI PCI card, this can be extended to 12 meters). But FireWire provides a way out here, too. By adding a *repeater,* which cleans up and amplifies the signals traveling on the wires, you can extend FireWire's reach even further without having to worry about degradation.

Blazing Performance

FireWire's ease of use makes connecting peripherals easier, but its greatest strength is its speed. To transfer uncompressed, full-frame full-speed video requires around 210 Mbps. USB can't transfer more than 12 Mbps, which isn't even in the ballpark. The SCSI port on the back of previous Macs could manage 40 Mbps at best. The FireWire port built into the new Power Mac G3's, on the other hand, can transfer data at up to 400 Mbps. (SCSI can reach faster speeds—up to 640 Mbps—via a SCSI PCI card.)

FireWire even has room to grow. Soon there will be an upgraded version of FireWire hardware that will be able to handle up to 800 Mbps, and future versions might support transfer rates that exceed 1.5 Gbps. With bandwidth like that, a video-editing system could receive multiple live video feeds simultaneously and never drop a frame.

Guaranteed Delivery Not only is FireWire speedy, but it also has the ability to *guarantee* speed to applications that need it, something that SCSI can't do. When your Mac wants to read a file from a SCSI hard drive, for example, it has to compete with all the other data being exchanged on your SCSI chain. If several devices are all trying to transfer data simultaneously, the exchange between your Mac and the hard drive will slow down. That's not great for any task, such as handling digital video or burning CDs, that requires a guaranteed real-time data delivery rate.

But FireWire supports a system called *isochronous transfer,* which can provide that guarantee. In an isochronous transfer, two devices on a FireWire bus stake a claim to a guaranteed amount of bandwidth—and they get ownership of that bandwidth for the duration of the data transfer, regardless of what other devices may be using the bus. So when you're capturing video, burning a CD or DVD disc, or performing some other task that requires a steady stream of data, you don't have to worry about other devices' interrupting your data stream and causing dropped frames or failed disc burns.

Versatile Performer One of FireWire's most interesting features is that it supports more than one computer on the same bus segment. Thus you could use it to let several computers share a peripheral device, such as a scanner or a printer. You could even use it as an alternative to Ethernet for file transfers between computers. (Apple, however, says it has no plans to provide software to enable either device sharing or Mac-to-Mac file transfers. For any of that to happen on the Mac, other companies will have to step into the breach and write that software themselves.)

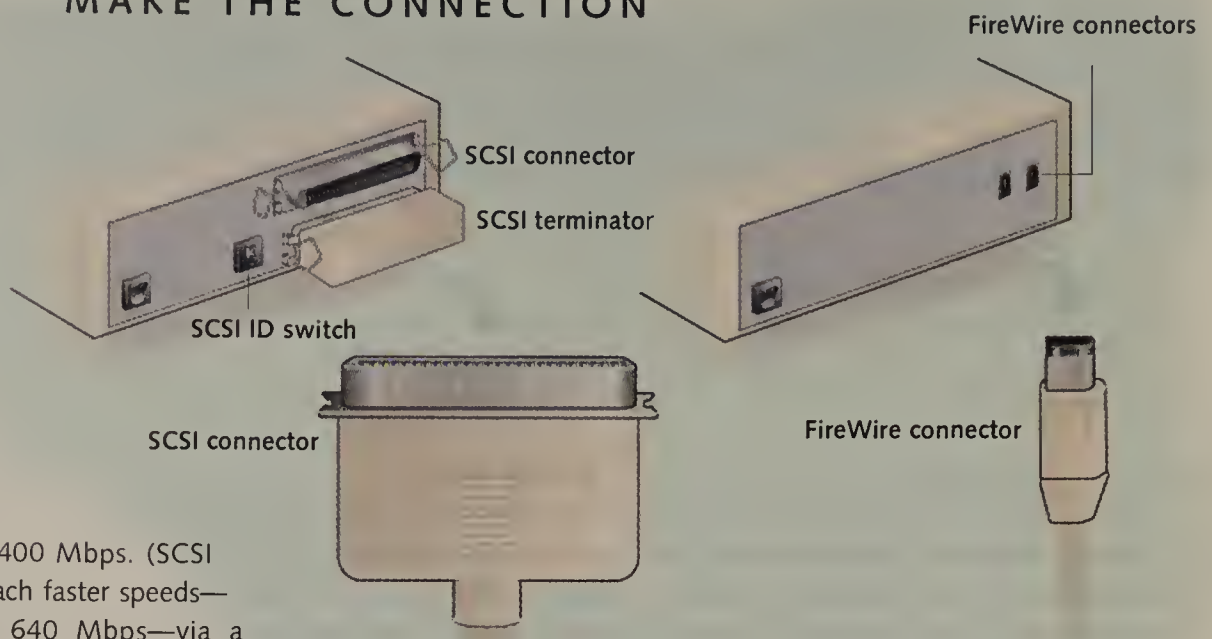
The flexibility doesn't stop there. FireWire even supports device-to-device transfers that don't involve a computer at all. That makes it possible to copy digital-video data from a digital camcorder directly to a digital VCR, or directly to a hard drive, without the need for computer control. This is all assuming that vendors build such capability into their devices, of course.

The Wait Begins

FireWire products are beginning to make their mark in the digital-video domain. FireWire-enabled digital-video camcorders are available from Sony, JVC, Panasonic, Canon, and Sharp; Sony, JVC, and Panasonic also offer FireWire-savvy digital VCRs.

As the Mac community starts buying new Power Mac G3's, it's clear that the number of available FireWire products will continue to grow. At press time, however, all the companies we contacted were playing their cards close to the vest. Although many companies announced last summer that they'd be producing USB products for the iMac, those products are only slowly starting to arrive. FireWire-savvy MIDI devices, printers, CD changers and CD-R recorders, and hard drives are on the way, but just how quickly they'll begin to reach users' desktops is still anyone's guess.

MAKE THE CONNECTION



ARNE HURTY

SCSI VERSUS FIREWIRE

	SCSI	FireWire
Number of devices supported	7[A]	63[B]
Requires termination	yes	no
Hot-pluggable	no	yes
Sets device IDs automatically	no	yes
Allows branching connections	no	yes
Physical connector type	nasty	nice
Computer required for data transfer	yes	no
Standard transfer rate	40 Mbps[C]	400 Mbps
Maximum transfer rate	1.2 Gbps[D]	>1.5 Gbps[D]

[A] In addition to the computer. [B] Can be increased by using a bridge. [C] Standard Mac external SCSI. [D] Future implementation.

APPLE'S BASE CONFIGURATIONS AT A GLANCE

Model	Price	Cache	RAM	Hard Drive	CD/DVD Drive	Zip Drive
Power Mac G3/300MHz	$1,599	512K	64MB	6GB Ultra Atapi	24× CD-ROM	no*
Power Mac G3/350MHz	$1,999	1MB	64MB	6GB Ultra Atapi	32× DVD player	no*
Power Mac G3/350MHz	$2,499	1MB	128MB	12GB Ultra Atapi	24× CD-ROM	yes
Power Mac G3/400MHz	$2,999	1MB	128MB	9GB Ultra II SCSI	24× CD-ROM	no*

* *Available as an option.*

continued from page 69

The bottom line: This arrangement of slots and built-in capabilities should satisfy all but the most demanding users—those looking to load up their Macs with multiple video and sound cards, for example. For those users, PCI expansion chassis remain the only option.

Thankfully, when it comes to expansion, these systems are loaded. The new G3's offer three internal 3½-inch bays for installing additional drives and two more externally accessible 5¼-inch bays for storage devices such as a 24× CD-ROM drive, or the optional DVD-ROM and Zip drives. But keep in mind that since there's no built-in SCSI bus on these models, you'll need to add a PCI card if you want to add internal SCSI devices.

A New View

No new Power Mac would be complete without a matching display, and Apple hasn't disappointed here. Apple's flat-panel display and new line of CRT monitors shine in the same translucent plastic as the new computers they've been matched with. Apple's new 17- and 21-inch Studio Display monitors stand on a sturdy tripod that doubles as a space to stow away the pint-size iMac keyboard when you're not using your computer.

The price of these new monitors is also appealing. The 17- and 21-inch monitors (the latter with ColorSync) cost $499 and $1,499, respectively. The 17-inch display promises up to 1,600 by 1,200 resolution, with a 60Hz refresh rate. The 21-inch display features a Sony Trinitron tube, internal calibration (phosphor-decay), a four-port USB hub, and a shortcut display module that launches all screen functions.

Apple's current flat-panel Apple Studio Display monitor has also gotten a minor makeover, picking up the style of the new G3's by adding a ribbed white plastic casing. It's also gotten a bit more affordable: the new display costs $1,099, $200 less than the original Studio Display.

Very VGA These new monitors get their signals via the new VGA video connector on the back of the new Power Mac G3's. That means these desktop Macs can use PC monitors and video cables without needing a Mac-to-VGA adapter. (Of course, if you want to use an old Mac monitor with these new models, you'll need a VGA-to-Mac adapter instead.)

The Last Word

The design of these new G3's is a variation on a popular and successful theme—the iMac. Like the iMac, these new Macs are daring, eye-catching, and even a bit shocking. Their almost whimsical look is a far cry from what we've been conditioned to think of as a professional-looking machine. Apple has taken the mini-tower, a utilitarian computer meant to be hidden under a desk, and dared its users to show theirs off.

But aesthetics aside, the real news about the new Power Macintosh G3 series is what's inside that blue plastic case. These Power Macs change the rules of Macintosh computing in subtle but significant ways. With improved internal architectures, fast processors, easily accessible interiors, and remarkable prices, the new Power Mac G3's are impressive products. They're much faster than what's currently on your desk and more affordable than you'd ever imagine. Don't let the flashy exterior fool you. **m**

Senior Associate Editor ALLYSON BATES reports on systems and cross-platform issues for *Macworld*.

THE G3'S NEW PORTS

Just mail or fax this completed coupon for your FREE Catalog & UPS Selection Guide. Better yet, order it today at the APC Web site!

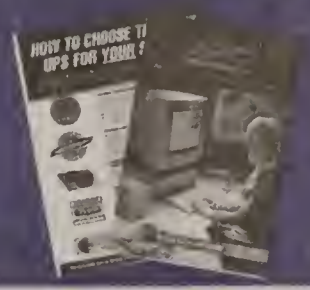
http://promo.apcc.com KEY CODE i749z

(888) 289-APCC x8424 • FAX: (401) 788-2797

APC®

Legendary Reliability™

FREE Catalog & UPS Selection Guide



☐ **YES!** I want to know how to choose the right UPS for my system. Please send me my FREE Catalog & UPS Selection Guide.

☐ **NO,** I'm not interested at this time but please add me to your mailing list.

Name: _____

Title: _____ Company: _____

Address: _____

_____

City/Town: _____ State: _____

Zip: _____ Country _____

Phone: _____

Brand of UPS used? _____ # _____

Brand of PC used? _____ # _____

Brand of Servers used? _____ # _____

©1999 APC. All Trademarks are the property of their owners. 8P4C8C8-US • E-mail: apcinfo@apcc.com • 132 Fairgrounds Road, West Kingston, RI 02892 USA

NO POSTAGE
NECESSARY
IF MAILED
IN THE
UNITED STATES

BUSINESS REPLY MAIL

FIRST-CLASS MAIL PERMIT NO. 36 WEST KINGSTON, RI

POSTAGE WILL BE PAID BY ADDRESSEE

APC
AMERICAN POWER CONVERSION

KEY CODE: i749z
Department: C
132 FAIRGROUNDS ROAD
PO BOX 278
WEST KINGSTON RI 02892-9920

How to Contact APC

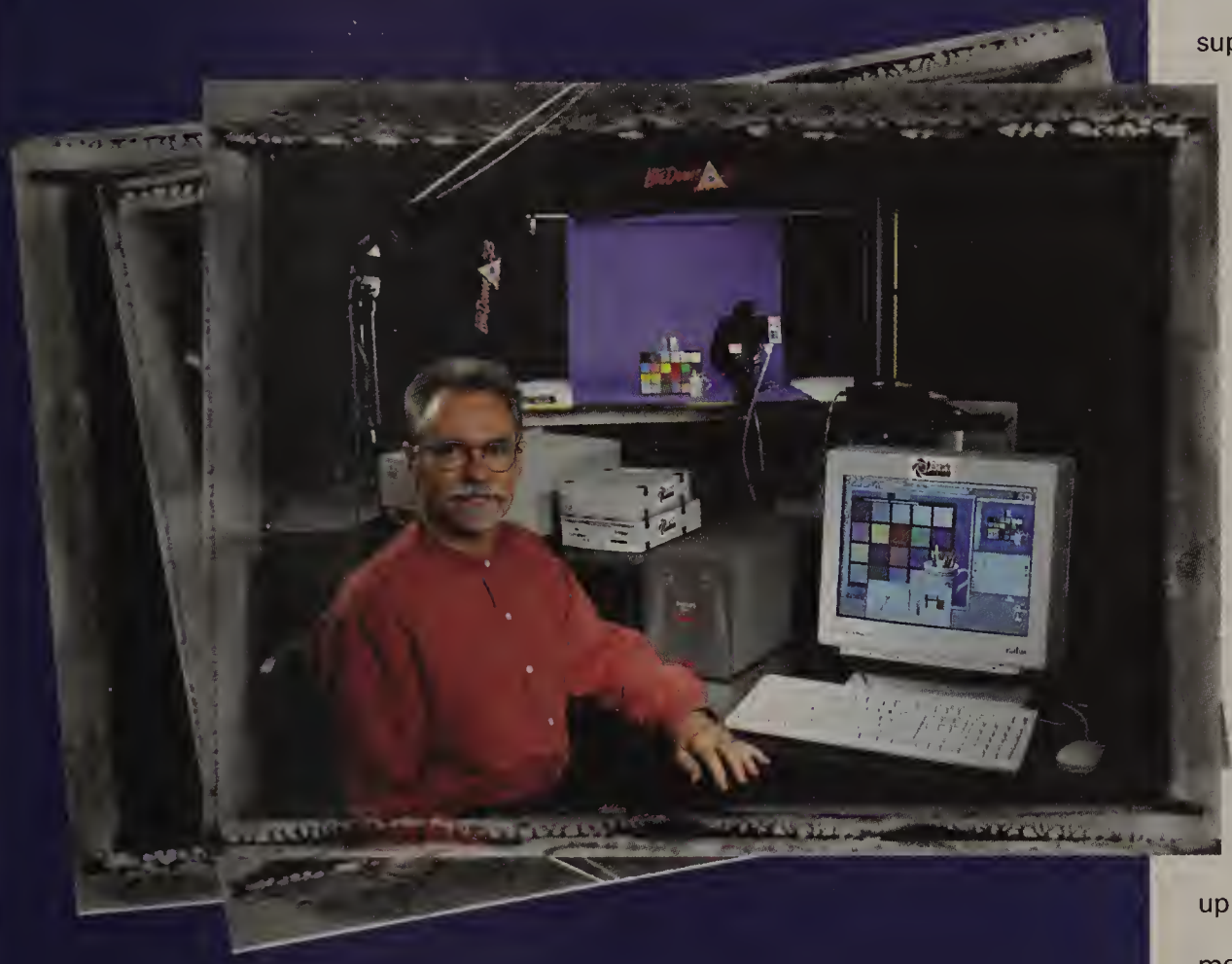
Call: (888) 289-APCC, *use the extension on the reverse side*

Fax: (401) 788-2797

Visit: ***http://promo.apcc.com***, *use the key code on the reverse side*

APC
Legendary Reliability™

What does a digital photographer do in the middle of a lightning storm?



With APC battery backup power, he gets the picture. All the time.

You can find APC power protection products at:

1-800-255-6227 · COMPUSA THE COMPUTER SUPERSTORE · BEST BUY · MICRO CENTER

©1999 American Power Conversion. All Trademarks are the property of their owners. BP4CBCF-US • PowerFax: (800)347-FAXX • E-mail: apcinfo@apcc.com • 132 Fairgrounds Road, West Kingston, RI 02892 USA

APC Back-UPS Pro®

Real Life

Dear APC: Bartlett Digital photography studio bills by the hour, which means we cannot tolerate avoidable downtime. The surge suppression and battery power of an APC UPS lets us finish the job, as scheduled, even with a temporary power outage.

- Tom Bartlett, central Florida

Fact

According to research by IBM, a typical computer is subject to more than 120 power problems a month. Surge protectors prevent only a fraction of the power problems that cause keyboard lock-ups, system crashes, corrupted data, and worst of all, motherboard burnout. An APC uninterruptible power supply (UPS) with surge suppression and battery back-up protects your software, hardware, and most importantly, your work. APC Back-UPS Pro® provides clean, reliable power that lets you function at peak performance, giving you time to shut down during a power outage. Getting the picture? Visit the listed retailers to add APC's Legendary Reliability to your system.

FREE Catalog & UPS Selection Guide.

Learn how to choose the right power protection for your system.

Order now Key Code i749z

http://promo.apcc.com

888-289-APCC x8424 • Fax: 401-788-2797

APC®
Legendary Reliability™

Presenting the 14th Annual

EDITORS' CHOICE AWARDS

What a year! If 1997 was a year of incredible lows, 1998 gave the Mac community equally breathtaking highs. From the revitalization of the PowerBook to the stunning debut of the iMac, 1998 was the year that Apple, the Macintosh, and the Mac OS came back with a vengeance. ❧ But it wasn't just Apple's doings that made 1998 a banner year for the Macintosh. The year brought innovative new applications, impressive updates to old favorites, and some truly amazing technology advancements conceived far from Cupertino. ❧ Once a year, we at *Macworld* recognize the products we feel are the best of the best, with our Editors' Choice Awards. If you had any doubt that 1998 was a great year for the Macintosh, you'll need no more evidence than these 31 award winners.

PHOTOGRAPHS BY KEVIN CANDLAND

Macworld
You are invited to

GENERAL MAC

Utility

WINNER: Casady and Greene's **Conflict Catcher 8** ($80; 831/484-9228, www.casadyg.com) is *the* essential troubleshooting tool for Macintosh users. The latest version of the popular extension-management utility offers improved testing for software conflicts, support for Mac OS 8's contextual menus, more file descriptions, and the ability to be controlled by Apple's Location Manager. Most impressive of all is Conflict Catcher's clean-install system-merge function, which lets you easily move old system files you still want into a newly installed System Folder.

RUNNERS-UP: Dantz Development's personal backup program, **Retrospect Express 4.0** ($50; 925/253-3000, www.dantz.com), finally brings the power of Retrospect to individual Mac users. Express offers most of Retrospect 4.1's popular features (including incremental backups and CD-R support), at an impressive price. **Action Files 1.1,** from Power On Software ($50; 612/317-0344, www.actionutilities.com), adds enhanced features to the standard Open and Save dialog boxes to make it easier to access and modify files.

Internet Client Software

WINNER: In just a year, Microsoft **Outlook Express 4.01** (free; 425/882-8080, www.microsoft.com) has become the star of the Mac Internet e-mail scene. Its features—including support for HTML mail, powerful mail filtering, a friendly interface, and (if you use Office 98) a built-in contextual spelling checker—can't be beat, and neither can its price.

RUNNERS-UP: There's no end to the number of shareware Internet clients, and one of the best is Stairways Software's **Anarchie Pro 3.0** ($35; www.stairways.com), a powerful FTP client that has a Finder-like interface. Microsoft **Internet Explorer 4.01** (free; 425/882-8080, www.microsoft.com) is the most friendly and feature-rich Web browser available for the Macintosh, and the version 4.01 update fixed many nagging problems that existed in version 4.0.

Cross-Platform Product

WINNER: When it comes to making Macs and Windows-based PCs play nice, Thursby Software Systems' **Dave 2.1** ($149; 817/478-5070, www.thursby.com) is the answer. Once you install Dave on your Macs, they can share files and printers with PCs without a hitch. Windows users on your network can see your Macs and AppleTalk-based printers via the standard Network Neighborhood interface, and Mac users can mount Windows file servers via the Chooser.

RUNNERS-UP: Media4 Productions' **MacDrive 98 2.1** ($80; 515/225-7409, www.media4.com) helps Windows speak the Mac's own language fluently. In addition to making Mac file servers and printers available to Windows users, MacDrive automatically converts Mac files' creator and file types to Windows equivalents and lets PCs use Mac-formatted floppies. Mac-to-PC file exchange is easy with DataViz's **MacOpener 4.0** ($75; 203/268-0030, www.dataviz.com), which lets PCs use Mac-formatted floppies, CD-ROMs, removable-media drives, and hard drives.

Game

WINNER: Just when we were starting to get tired of the first-person–shooter genre, along comes a game that changes everything. Epic Megagames and Digital Extreme's **Unreal** ($50; distributed by MacSoft, 612/509-7600, www.wizworks.com/macsoft/) offers breathtaking graphics and challenging enemies. You'll use more brain than brawn and enjoy this game's richness of atmosphere, exploration, and plot. Not very many games merit the cost of buying a 3-D–acceleration card and additional RAM. This one does.

RUNNERS-UP: Blizzard Entertainment's **Diablo** ($30; 310/793-0600, www.blizzard.com) takes all the best elements of role-playing games and puts them into a real-time, addictive adventure that features outstanding graphics and unparalleled network play. Impressive 3-D graphics and outstanding game play make Eidos Interactive and Core Design's **Tomb Raider II** ($50; distributed by Aspyr Media, 512/708-8100, www.aspyr.com) one of our favorite action/adventure games (Lara Croft's nauseating level of fame notwithstanding).

Consumer Hardware Product

WINNER: With Epson America's **Stylus Color 740** ($279; 310/782-0770, www.epson.com), you can create photo-realistic prints without breaking the bank. This low-cost alternative to color-laser printers offers high-quality output, built-in serial and USB ports, and easy-to-use software. The software driver also includes three color-management options: ColorSync, PhotoEnhance3, and user-defined custom settings.

RUNNERS-UP: Realism is a must when players are immersed in their favorite game. Micro Conversions' **Game Wizard** ($349; 817/468-9922, www.microconversions.com), based on the Voodoo 2 chip set, is the fastest 3-D accelerator available for the Mac and offers beautiful rendering to boot. Good quality and an affordable price are only two of the perks of Umax Technologies' **Astra 1220U** ($149; 510/651-4000, www.umax.com). This low-cost scanner is the first to offer Mac USB support, making it the best option for iMac owners.

Education/Children's Software

WINNER: Broderbund's **Kid Pix Studio Deluxe** ($30; 415/382-4400, www.broderbund.com) continues to set

the standard for children's software. This painting program features all the basic tools you'd expect, plus a variety of wacky brush effects, lots of colorful backgrounds, and a gallery of fun stamps and clip art. It doesn't stop there—you can even produce multimedia presentations, such as a puppet show featuring a cast of characters and silly sounds. Kid Pix is pure fun—for kids of any age.

RUNNERS-UP: You can take a fun-filled road trip through the Mexican countryside and the Spanish language in Knowledge Adventure's **Spanish for the Real World** ($30; 310/793-0600, www.knowledgeadventure.com), the challenging puzzle game that makes learning Spanish fun. And if you've ever wanted to learn how sound, light, and electricity work, just take a tour of Edmark's **Zap!** ($30; 425/556-8400; www.edmark.com), which offers fun labs that are full of challenging games and puzzles.

Reference Software

WINNER: Anything you've ever wanted to know can probably be found in the **Encyclopædia Britannica CD: 1998 Standard Edition** ($85; 800/747-8503, www.eb.com). Unlike other multimedia encyclopedias, this CD-ROM eschews QuickTime movies and heavy use of multimedia elements to delve more deeply into topics. The result is an authoritative powerhouse. A single CD-ROM holds 72,000 articles (including 5,000 not in the printed set), 4,000 photos and graphics, 1,200 maps, and 15,000 links to related Web sites.

RUNNERS-UP: Advanced as well as budding astronomers will find Maris Multimedia's **Redshift 3** ($50; distributed by Piranha Interactive, 602/491-0500, www.redshift3.com) a potent guide to the night skies, which are accurately mapped here for every moment between January 1, 4713 B.C., and A.D. December 31, 9999. Every page of every single issue of *National Geographic* magazine published between 1888 and 1997 is contained in **The Complete National Geographic** ($180; distributed by Mindscape, 415/895-2000, www.mindscape.com). National Geographic Interactive created this definitive 31-disc CD-ROM set.

BUSINESS

Business Productivity Software

WINNER: Microsoft **Word 98** ($390; 425/882-8080, www.microsoft.com) is smooth, stable, and full of pleasant surprises. Our favorite? As you type, subtle colored underlines flag spelling and grammatical errors; control-click on a flagged word to view a pop-up menu of correction suggestions. In short, Microsoft has done an excellent job of packing vast power into a comprehensive, modern (and Mac-like) interface. After several years in the wilderness, Microsoft Word reigns supreme again.

RUNNERS-UP: It's all the little things in Microsoft **Excel 98** ($399; 425/882-8080, www.microsoft.com) that are likely to please most people. For many, the multilevel Undo command will be worth the price of the upgrade all by itself. Overall, this version of the venerable spreadsheet program has a solid, polished feel. Adrenaline Software's **Charts Pro** ($400; 418/658-9909, www.adrenaline.ca) is an intuitive, uncluttered application that is able to transform even the most-mundane sales figures into dazzling presentations.

Data-Management Product

WINNER: Blurring the line between shareware and commercial software, Chronos's **Consultant 2.53** ($60; 801/957-1774, www.chronosnet.com) is sold only via the Internet. But its features are purely professional, including integrated calendar, address-book, to-do–list, and note-taking environments (not to mention connectivity with Palm handheld organizers). Consultant is probably the best all-purpose personal information manager that's available on the Macintosh today.

RUNNERS-UP: Support for importing from ODBC databases is yet another of the countless features that make **FileMaker Pro 4.1** ($199; 408/987-7000, www.filemaker.com) a powerful, easy-to-use database application. Simple, lightweight, and kind to batteries, 3Com's **Palm III** ($369; 801/431-1536, www.palm.com) is the handheld organizer of choice for Mac users, despite 3Com's inexplicable delay in releasing the long-awaited update to its MacPac software.

Server Software

WINNER: The powerful and innovative **WebTen 2.1** ($495; 805/963-6983, www.tenon.com), Tenon Intersystems' adaptation of the popular Apache Web server, offers the fastest way yet to serve a Web site from your Mac. With its Unix-based Mach kernel, WebTen trounces the competition—and holds its own against Windows NT, helping dispel rumors that the Mac isn't a viable Web-serving platform. This industrial-strength server software combines compatibility with scripts designed for Unix servers and support for the wide variety of WebStar plug-ins.

RUNNERS-UP: Apple Computer's **AppleShare IP 6.0** ($999; 408/996-1010, www.apple.com) reinvents the face of file serving, boasting faster performance, better compatibility with Windows clients, and a revamped mail engine. The most popular Web server for the Mac isn't the fastest, but

StarNine Technologies' **WebStar 3.0** ($499; 510/649-4949, www.starnine.com) earns points for ease of use, polish, and respectable performance.

Storage Product

WINNER: APS Technologies takes home the gold this year with the **CD-RW Pro 4×2×6** ($499; 816/483-1600, www.apstech.com) CD recorder. Given their multitude of uses, CD recorders have truly come of age. In addition to writing to CD-R media, the CD-RW Pro also works with the less-compatible—but rewritable—CD-RW media. And it's all housed in a well-designed case that includes built-in active termination.

RUNNERS-UP: LaCie's **DVD-RAM** ($799; 503/844-4500, www.lacie.com) drive is both a DVD-ROM drive and a high-capacity backup device. There are competing rewritable DVD formats, but the DVD-RAM drive beat them all out of the gate. Atto Technology's **FibreBridge** ($3,295; 716/691-1999, www.attotech.com) links SCSI devices to the high-speed Fibre Channel architecture. The FibreBridge offers as much as 64MB of buffer memory as well as remote-management features.

Display

WINNER: We were blown away by the image quality, features, and price of Mitsubishi Electronics America's **Diamond Pro 900u** ($799; 714/220-2500, www.mitsubishi-display.com). With dual USB and video inputs, the 900u is the perfect monitor for a dual-computer setup. You can transfer your monitor (and all USB peripherals, if you've got a USB card or a new USB-capable Mac) from one computer to the other just by pressing a single button on the front of the 900u. But the key to this monitor is its screen: Mitsubishi's new 19-inch, DiamondTron NF (Natural Flat) tube offers impressive image quality and reduced glare.

RUNNERS-UP: It's never been easier to impress when you're on the go. Epson America's **PowerLite 5500C** ($7,499; 310/782-0770, www.epson.com) weighs less than ten pounds, sets up easily, and offers best-of-class image quality. Apple Computer's **Studio Display** ($1,299; 408/996-1010, www.apple.com) is a great 15-inch LCD monitor at an affordable price, and its stylish design is sure to turn heads.

Science/Engineering Software

WINNER: SAS Institute's **StatView 5.0** ($695; 919/677-8000, www.statview.com) is a powerful and easy-to-manage statistics application perfect for even non-statisticians. Sporting well-designed templates and documentation, StatView allows you to create authoritative, high-impact charts quickly. And it imports and exports Microsoft Excel and Word files flawlessly—a must for most businesspeople.

RUNNERS-UP: National Instruments' **LabView 5.0** ($995; 512/794-0100, www.natinst.com) reigns supreme in the areas of data acquisition and instrument control. LabView 5.0 adds wizards for data acquisition and voltage conversion. A powerful modeling tool for designers and architects, Ashlar's **Vellum Solids 98** ($2,995; 408/615-6840, www.ashlar.com) is blessedly easy to navigate, with strong import capabilities and great online support.

World Class Awards

TECHNOLOGY OF THE YEAR

Much maligned and often ignored, especially by Apple, **AppleScript** finally came into its own in 1998. For years, AppleScript has been a unique tool that allows Mac users to automate repetitive tasks and make their applications work together. Its power and ease of use were one of the Mac's unsung advantages over Windows during Apple's darkest days. It's not an overstatement to say that without AppleScript, many publishing-industry Mac users would've moved to Windows long ago.

For years, Apple promised that a PowerPC-native version of AppleScript was right around the corner. Subsequently, rumor had it that AppleScript was dead, with no further updates being planned. But in 1998, Apple finally realized that AppleScript was a diamond in the rough.

In Mac OS 8.5, AppleScript steps to the fore, running in native PowerPC code that causes scripts to run as much as ten times as fast as they did in the past. Much more of the Mac OS is scriptable than ever before. AppleScript has been built into the Finder as Folder Actions, a system that allows AppleScripts to be set to run automatically whenever a folder is opened or its contents are altered. And Mac OS 8.5's new HTML-based help system employs AppleScript as its means of interacting with the rest of the Mac OS. Kudos to Apple for finally recognizing what many Macintosh users have known all along—that AppleScript is, in numerous ways, the lifeblood of the Mac OS.

IMPACT AWARD

The best thing about the **iMac** ($1,299; 408/996-1010, www.apple.com) is not that it has made a lot of noise but that it has created a lot of silence—particularly from all those naysayers who spent most of last year trying to perform last rites over Apple's not-quite-dead carcass. If there is a single reason for Apple's amazing turnaround, it is Jonathan Ive's transparent Bondi-blue baby.

Never before have we seen a single product cause such a furor. The iMac has driven peripheral developers into a frenzy to get USB products (particularly transparent turquoise-and-white ones) out the door as fast as possible.

There's no debating that the iMac is the product that had the most impact on the Mac world—and probably the entire computer industry—in 1998. But it's also probably one of the most influential products in the history of the personal computer. In the end, the iMac's beautiful design and two-plug simplicity may spell the end of computers in beige boxes with a spaghetti factory of cables hanging off their backs. For that, every present and future computer user should be grateful.

PUBLISHING AND DESIGN

Painting/Image-Editing Software

WINNER: Adobe **Photoshop 5.0.2** ($649; 408/536-6000, www.adobe.com) is an outstanding upgrade to what has long been the strongest image-editing program for the Mac. The new History palette permits nearly unlimited undos, and the Text tool is now much more flexible than in previous versions. Photoshop's new color-management features aroused controversy, but despite this, the program still makes it easier than ever to ensure consistent colors in your artwork.

RUNNERS-UP: With MetaCreations **Painter 5.5 Web Edition** ($449; 805/566-6200, www.metacreations.com), the leading natural-media painting tool now has several enhancements for Web graphics, including the ability to create JavaScript rollovers. Corel **Photo-Paint 8 for Power Macintosh** ($495; 613/728-8200, www.corel.com) has quite a few rough edges but offers an impressive set of image-editing features, including some you won't find in Adobe Photoshop.

Drawing Software

WINNER: The competition was stiff, but Adobe **Illustrator 8.0** ($375; 408/536-6000, www.adobe.com) gets the nod for its slew of new features and its streamlined interface. Among the most noteworthy additions: live blends, blends on a path, natural-media brush effects, and enhanced distortion controls. If that's not enough, Adobe Photoshop users will rejoice at the ease with which Illustrator interacts with the image-editing package. The software that brought professional illustration capabilities to the Mac has retaken its throne.

RUNNERS-UP: Macromedia **FreeHand 8.0.1** ($399; 415/252-2000, www.macromedia.com) holds its own, with its superior text, autotracing, and search-and-replace functions. It's also the best drawing program for creating Web animations. **CorelDraw 8 for Power Macintosh** ($695; 613/728-8200, www.corel.com) is an impressive upgrade, offering well-designed tools for transparency, interactive enveloping, and 3-D effects.

Digital Camera

WINNER: For those looking for the best in overall performance and quality, Olympus America's **D-620L** ($1,199; 516/844-5000, www.olympus.com) is hard to beat. Olympus's latest point-and-shoot camera features a high-resolution CCD capable of capturing up to 1.4 million pixels per image, a continuous 3× optical zoom lens, a six-mode flash system, 8MB of memory, and improved speed and power management. For the optimal shots, the D-620L includes manual spot-metering compensation, white-balance override, and the ability to accept a variety of lenses.

RUNNERS-UP: Eastman Kodak's **DC260** ($899; 716/724-4000, www.kodak.com) can capture up to 1.6 million pixels per image—a first for digital cameras in its class. It also features a continuous 3× optical zoom and USB connectivity. Improving on Nikon's popular CoolPix 900, the **CoolPix 900s** ($799; 516/547-4315, www.nikonusa.com) adds more memory (from 4MB to 8MB), a hot shoe for an external flash, and a bevy of refined features.

Scanner

WINNER: A perfect fit for prepress houses, Umax Technologies' **PowerLook 3000** ($3,095; 510/651-4000, www.umax.com) is a true workhorse. The PowerLook features a two-lens system that extends the scanner's effective range of optical resolution, allowing it to be used for scanning 35mm transparencies as well as normal reflective materials. A stationary pick-up element and moving scan bed also contribute to its ability to deliver accurate 3,048-dpi scans with excellent image quality.

RUNNERS-UP: Versatility is the strong suit of the **Dimâge Scan Multi** ($2,499; 201/825-4000, www.minoltausa.com), from Minolta. This film scanner touts compatibility with a variety of formats, from 16mm to Kodak's Advanced Photo System and even all the way up to 6 by 9 centimeters. With its advanced LinoColor software, Heidelberg CPS's **LinoColor Saphir Ultra 2** ($3,695; 516/753-4770, www.linocolor.com) features professional capabilities found in the LinoColor high-end drum-scanner line but delivers them at a desktop price.

Professional/Workgroup Printer

WINNER: Affordable proofing sums up the credentials of Epson America's **Stylus Pro 5000** ($9,995; 310/782-0770, www.epson.com). For under $10,000, graphics professionals can enjoy in-house proofing that rivals Matchprint quality. It can simulate SWOP, Du Pont Waterproof, DIC, Chromalin EuroSTD, and any of five custom environments. The bundled RS-5000 Fiery Server has 10/100BaseT, SCSI-2, IEEE 1284 parallel, and serial connectivity for networking.

RUNNERS-UP: The Hewlett-Packard **Color LaserJet 4500DN** ($3,799; 650/857-1501, www.hp.com) offers outstanding output quality and can print duplex color in formats up to legal size. The Xanté **Accel-A-Writer 3G** ($5,995; 334/342-4840, www.xante.com) offers mirror printing, enhanced line screening, densitometer calibration, and negative-imaging enhancements.

Graphics Utility

WINNERS: **Test Strip 2.02** ($149; 805/646-0217, www.vividdetails.com), from Vivid Details, offers sophisticated color-correction functions in an easy-to-use Adobe Photoshop plug-in. The program presents variations of your image with different color settings; just pick the

image you want, and the program applies the appropriate color changes. Version 2.02 offers a thumbnail-viewing mode and an Editable Task List that lets you easily review and modify your changes. Extensis **PhotoTools 3.0** ($150; 503/274-2020, www.extensis.com) bulks up with new Web-graphics features and remains a strong productivity tool for Adobe Photoshop users.

RUNNER-UP: Ultimatte **KnockOut** ($395; 818/993-8007, www.ultimatte.com) lets you create sophisticated masking effects with a minimum of hassle.

Publishing Utility

WINNER: Altamira Group's **Genuine Fractals Print Pro** ($159; 818/556-6099, www.altamira-group.com) lets you squeeze large Adobe Photoshop images into much smaller Fractal Image Format files. When you decompress the files, you can make them much bigger than the originals, with minimal loss of image quality. The new Print Pro version works with CMYK files—in addition to RGB—and provides a lossless-compression option.

RUNNERS-UP: Extensis **PreFlight Pro 2.1** ($400; 503/274-2020, www.extensis.com) inspects your documents for likely output problems and helps you fix them. Extensis **QX-Tools 4.0** ($150; 503/274-2020, www.extensis.com) provides a host of useful productivity enhancements for QuarkXPress 4.X.

Input Device

WINNER: Wacom's **Intuos** ($510; 360/896-9833, www.wacom.com) is an enhanced tablet/pen combo that features a highly sensitive tip and 1,024 pressure levels. The system also includes three new input devices: the Lens Cursor, which features a rotating crosshair lens; the Airbrush, which includes a finger wheel for controlling ink flow; and the 4D Mouse, which offers a thumbwheel control for zooming in on images or navigating 3-D spaces.

RUNNERS-UP: AnimaX International ASA's **Anir Ergonomic Mouse Pro** ($70; 818/713-9933, www.animax.no) is an ergonomic pointing device that looks like a pilot's control stick. The mouse encourages a natural vertical hand position, with the cursor being controlled by your thumb in a natural resting position. CalComp's **Creation Station Pro** ($289–$599; 714/821-2000, www.calcomp.com) features a pressure-sensitive stylus along with a cordless, batteryless, five-button mouse—the first one designed to work with a digital tablet.

World Class Awards

SOFTWARE PRODUCT OF THE YEAR

After the public-relations disaster that was Word 6.0, Microsoft needed a minor miracle to redeem Microsoft Office in the eyes of Mac users. But that's just what happened—Microsoft made up for its past sins with an updated Office that matched the Windows version of Office on almost every front and even surpassed it in several places.

Microsoft Office 98 ($450; 425/882-8080, www.microsoft.com)—consisting of Word, Excel, PowerPoint, and Outlook Express—takes Microsoft's bevy of powerful business features and adds true Mac elegance. Support for Macintosh Drag and Drop, PlainTalk text-to-speech, and QuickTime are all solid, and there's nary a Windows screen shot to be found in the manual.

Throughout this productivity suite, there are wonderful innovations: you can install Office simply by dragging a folder from the CD-ROM to your hard disk. And once you're up and running, the applications launch significantly faster than did their predecessors. Internet-savvy features abound—you can save documents as Web pages or attach a document to a message in your favorite e-mail program. Word can even *read* Web pages, either from your local hard disk or via the Internet. All three core Office programs let you create links that open live Web pages or files on your hard disk. And Outlook Express has rapidly become one of the most feature-rich and easy-to-use e-mail clients around.

All of this, and more, makes Office 98 a powerful, intelligent, friendly package. In short, for the first time in a long time, Microsoft seems to actually understand what the elegance of the Macintosh is all about.

HARDWARE PRODUCT OF THE YEAR

With the release of the sleek new PowerBook G3 series, Apple has proved that it's back at the top of its game when it comes to creating notebook computers. Led by the high-speed **PowerBook G3/300** ($3,999; 408/996-1010, www.apple.com), these incredible computers combine a sleek, subtly curved industrial design with power unlike any the laptop world has ever seen.

Although the PowerBook G3 can turn heads on airplanes and in coffeehouses, with its black coloring and its large, white Apple logo, there's much more to this notebook than style. It's actually a full-featured computer that's every bit as powerful as its desktop counterparts. Standard features include a 300MHz G3 PowerPC processor with a 1MB backside cache, 64MB of RAM, an 8GB hard drive, and a 20× CD-ROM drive—with a DVD-ROM drive as an optional extra. Its 14.1-inch, active-matrix LCD screen is beautiful to behold. Its dual bays can hold either storage peripherals or fast-charging lithium batteries. And a 56-Kbps modem is standard, as are Ethernet and infrared capabilities.

Given such impressive features, great performance, and fabulous industrial design, this portable is so impressive that it threatens the very existence of desktop systems. Why buy a deskbound model when you can take this powerful, stylish Macintosh along, wherever you may roam?

DYNAMIC MEDIA

Web Authoring Software

WINNER: GoLive **CyberStudio 3 Professional Edition** ($549; 650/463-1580, www.golive.com), with its easy-to-use interface and its powerful collection of HTML authoring features, is simply the best visual HTML editing tool available on any platform. Version 3 adds excellent support for Dynamic HTML and Cascading Style Sheets and offers a dramatically improved site-management view.

RUNNERS-UP: Macromedia **Dreamweaver 1.2** ($299; 415/252-2000, www.macromedia.com) can't be surpassed when it comes to the sheer number of HTML features it supports. Its corresponding Windows version also makes the program a good choice for cross-platform Web design teams. After many years of hype, NetObjects **Fusion 3.0** ($200; 650/482-3200, www.netobjects.com) finally emerges as a powerful, flexible tool for business users who need to design and update their Web sites in a flash.

Web-Graphics Software

WINNER: Powerful, easy-to-use vector-drawing tools and extremely small output files combine to make Macromedia **Flash 3.0** ($299; 415/252-2000, www.macromedia.com) a great application for creating dynamic graphics on the World Wide Web. New transparency and morphing features give a boost to what was already a one-of-its-kind tool that all cutting-edge Web designers ought to have in their design arsenal.

RUNNERS-UP: Macromedia **Fireworks 1.0** ($299; 415/252-2000, www.macromedia.com) gives Web designers a powerful way of creating, animating, and optimizing the GIF and JPEG images they place in their Web pages. A flexible, easy-to-use tool that will please business users and high-end designers alike, Adobe **ImageStyler 1.0** ($129; 408/536-6000, www.adobe.com) can create attractive buttons, headers, and JavaScript-based rollover effects in nothing flat.

3-D–Graphics Software

WINNER: The blazing-fast renderer in Maxon Computer's **Cinema 4D XL 1.0** ($1,995; distributed by 3D Gear, 805/484-5804, www.cinema4dusa.com) can ray-trace high–polygon-count scenes faster than any other Mac 3-D software on the market. Couple that with its full complement of professional-quality 3-D–modeling tools; its advanced animation tools, including impressive inverse-kinematics support; and its ability to export a huge variety of file formats, and Cinema 4D XL has all the right ingredients to become the leading 3-D software for the Macintosh.

RUNNERS-UP: Although it lacks an integrated modeler, **ElectricImage 2.8** ($2,995–$7,495; 626/577-1627, www.electricimage.com), from Electric Image, is still the state of the art when it comes to 3-D on the Mac. It's also one of the best rendering and animation tools available for any platform. MetaCreations' cleverly designed 3-D–terrain generator, **Bryce 3D** ($199; 805/566-6200, www.metacreations.com), lets you create and animate spectacular digital scenery, complete with clouds, water, mountains, and even rainbows.

Digital-Video Software

WINNER: Retouching individual frames of a movie is a tedious fact of life in the film industry. Puffin Designs' **Commotion 1.6** ($2,495; 415/331-4560, www.puffindesigns.com) brings relief to postproduction pros by letting them use a Mac—rather than an expensive workstation—to do professional-level cleanup and matte generation. Complementing more–full-featured compositing programs, such as Adobe After Effects, Commotion combines paint, rotoscoping, and motion-tracking tools with the ability to preview results in real time.

RUNNERS-UP: Standing out from the crowd of After Effects plug-in packages is MetaCreations' **Final Effects Complete** ($1,195; now owned by ICE, 781/768-2300, www.iced.com), a collection of more than 60 filters, including particle generators, video-distortion tools, and 3-D–perspective effects. Terran Interactive's **Media Cleaner Pro 3.0** ($359; 408/356-7373, www.terran.com) is a must for video and audio production, compressing media files for fast, high-quality playback from a CD-ROM or over a modem.

Audio/MIDI Software

WINNER: A mature, solid digital-audio/MIDI sequencer, Mark of the Unicorn's **Digital Performer 2.4** ($795; 617/576-2760, www.motu.com) is the single most complete audio/MIDI studio available right out of the box. With lots of bundled effects plug-ins, seamless import of samples, and a smooth interface sporting such goodies as the QuickScribe notation window, it's a potent combination of elegance and power for Mac musicians.

RUNNERS-UP: U&I Software's **MetaSynth 2.0** ($249; distributed by Arboretum, 650/738-4750, www.uisoftware.com), is an innovative and outrageous tool that converts graphic images into sound, using an image's brightness and color information to generate musical notes. MacSourcery's **BarbaBatch 2.4** ($395; 760/747-5995, www.macsourcery.com) is the ultimate Mac sound-file conversion utility, able to batch-process and produce good-sounding files based on your customized parameters. **m**

Senior Editor/Features JASON SNELL managed this year's awards.

On the Trail of Mac OS 8.5

Uncover Your Mac's Hidden Potential with These Tips, Tricks, and Shortcuts

by David Pogue

It doesn't take much detective work to spot the newest Mac operating system's flashiest features. It's no secret that OS 8.5 is zippier; offers a customizable look, feel, and sound; and has a file- and Internet-searching program named Sherlock. (For complete coverage of these basics, visit Macworld Online at www.macworld.com.)

But if you poke around enough, you'll also find the fingerprints of Apple engineers on many subtler components of the new OS. Hidden beneath the surface, new shortcuts, tricks, and undocumented features make Mac OS 8.5 even faster and more convenient. Here, for your sleuthing pleasure, are a few clues to help you get the most from the new system. There was so much to say about Sherlock that we dedicated an article solely to it: see "Sherlock Power Searching," *Secrets*, elsewhere in this issue.

ILLUSTRATIONS BY GERARD DUBOIS

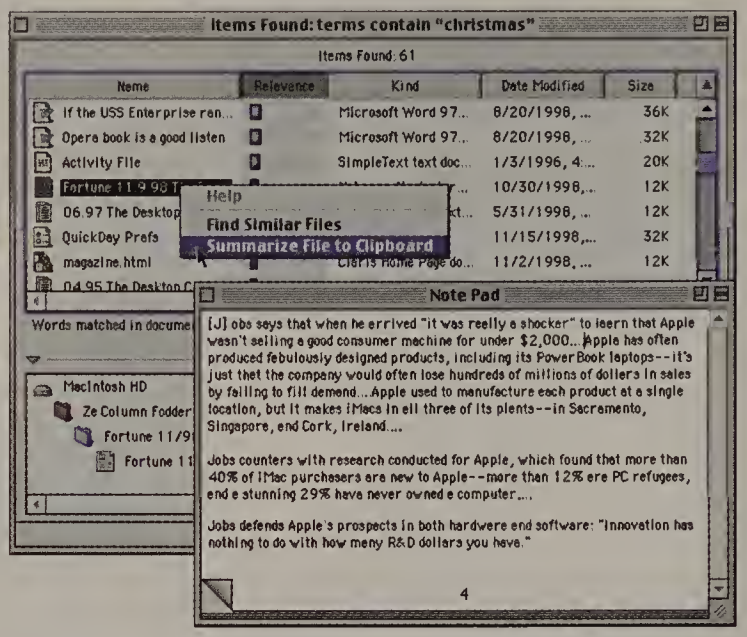
A Is for Application Menu

Kinsey Millhone and Hercule Poirot got reputations for being brilliant detectives—but then, they never had to help Mac novices over the phone. For example, asking a novice to identify the active program by analyzing the tiny Application-menu icon in the upper-right corner of the screen makes solving murders look like child's play.

Mac OS 8.5 goes a long way toward making the new Application menu easier to use, since it now identifies the active program by name. But there's more to this clever menu than that.

Name Games You can customize the new Application menu to fit almost any whim. If you prefer the old, icon-only Application menu, click on the divider on your menu bar (between the clock and the name of the active program) to make the name disappear.

The Quick Switch Don't want to use the mouse to switch active programs by choosing from the Application menu? Press ⌘-tab to cycle alphabetically through all your open programs. If you press ⌘-tab-shift, you'll cycle backward.



A Mac of Few Words If the DataViz MacLinkPlus translators are installed, Mac OS 8.5 can summarize all sorts of your lengthy documents with a single control-click.

Palette Appeal If you're switching among applications a lot, you may prefer to view all your open programs' icons at once, where they'll be available in a single click. In that case, click on the Application menu and drag it down to the desktop to turn it into a floating palette.

There's a lot you can do to make this palette yours. Press option and click on the zoom box in the palette's upper-right corner to make your palette show small icons. Want to orient the palette horizontally? Press option and shift, then click on the zoom box. Search the Mac OS Help file for the word *Switcher* to find clickable AppleScripts that customize the palette in more ways.

You can drag and drop icons from the Finder onto the Application palette to launch them, or option-click on a program tile to go to that program and hide the one you were just in.

A Menu with Many Faces If the OS's built-in Application-menu–modification tricks don't do it for you, download PolyMorph Software's free control panel Prestissimo (available from www.macworld.com/more/). It lets you efficiently rearrange the Application palette's buttons, change the size and shape of the palette,

ESSENTIAL TROUBLESHOOTING TIPS by Ted Landau

The thought of upgrading to Mac OS 8.5 probably fills you with excitement *and* trepidation. You may be eager to try out 8.5's touted new features, but odds are that you've also heard about the OS's reported problems—from applications that won't launch to system crashes at start-up.

Although Mac OS 8.5 certainly has had its share of trouble, the good news is that most of its problems are easily fixed. How? The best remedy is to update your software (see the table, "Get Up-to-Date"). This should eradicate more than 90 percent of the bugs and conflicts. The following advice should smooth most of the remaining potholes on the road to Mac OS 8.5 success.

TIP 1: PREVENT DATA LOSS

We may as well start where your fears probably do: reports that Mac OS 8.5 can cause a hard drive to fail. Perhaps you've heard the horror stories—a blinking question mark that appears at start-up and that there's no getting past. Often the only way to bring a Mac with this affliction back to life is to reformat the hard disk.

At press time, Apple reported that the primary cause of this *rare* problem is probably a defect in previous versions of Drive Setup (included with the Mac OS). Therefore, make sure to get Mac OS 8.5.1 from the Apple Web site (http://til.info.apple.com/swupdates.nsf/search) before you upgrade. It comes with a new version of Drive Setup—1.6.2. For maximum safety, back up your data (see "Be Safe, Not Sorry," February 1999) and reformat your hard disk before updating the OS by following these steps. Even if you're unwilling to reformat your hard disk, these steps alone should help keep you out of trouble.

1. Before you install OS 8.5.1, launch the latest version of Drive Setup (1.6.2 at press time) and select Update Driver from Drive Setup's Functions menu. Quit Drive Setup.
2. Launch the Mac OS 8.5 installer. When you get to the Install Software window, click on the Options button. Uncheck Update Apple Hard Disk Drivers. (This is very important.)
3. Proceed with installing Mac OS 8.5.1.

If you're using another formatting utility, such as FWB's $130 Hard Disk ToolKit (612/253-8300, www.fwb.com), make sure to get the latest version of the driver prior to installing Mac OS 8.5.1. Then follow steps 2 and 3.

TIP 2: AVOID THE APPLE MENU LOGJAM

Overall, Mac OS 8.5 is speedier than its predecessors, but sometimes it can bog down. For example, your Mac may slow to a snail's pace when you select any menu after switching from one open application to another.

The slowdown is caused by a bug in the OS that relates to the Apple Menu Options control panel. You will encounter it only if you've enabled Apple Menu Options *and* have an alias to a large folder or volume in your Apple menu (either at the root level or in the System Folder's Favorites folder).

and much more. (Allegro was Mac OS 8.5's code name—and in music, *prestissimo* is faster than *allegro*. Get it?)

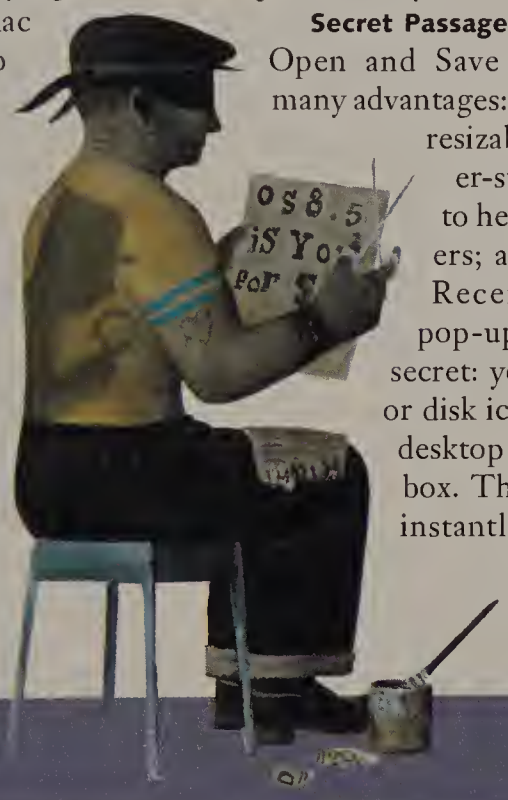
Speed Secrets

What makes Mac OS 8.5 fast is that it's been tuned to really take advantage of the PowerPC chip. This means that you can use it only if you have a PowerPC Macintosh, but it also means that it feels *much* faster than Mac OS 8.1, especially when you're copying over a network. The intrepid Mac user does not have to stop there, however.

Stealthy Scrolling Scroll bars may be the *obvious* way to get around a window or page, but they're not the *only* way: in any Finder window, simply press ⌘ and drag (inside the window) to slide your view up, down, or even diagonally.

Instant Open Mac OS 8's spring-loaded folders open automatically when you drag an icon on top. You adjust the speed of this auto-opening with the Edit menu's Preferences command.

Unfortunately, if you set the auto-opening delay too short, your cursor is likely to open windows accidentally. Yet if you set the delay too long, the feature takes forever to kick in. The Mac OS 8.5 solution? Leave the Preferences setting at *long*. Then, when you drag onto a folder, press the spacebar. The folder will spring open instantly.



Secret Passage Mac OS 8.5's new Open and Save dialog boxes have many advantages: they're movable and resizable; they offer Finder-style triangle buttons to help you navigate folders; and they show Disk, Recent, and Favorites pop-up menus. Here's the secret: you can drag a folder or disk icon directly from the desktop into an open dialog box. The directory changes instantly to show the contents of that folder or disk.

Summary Please, Watson

During OS 8.5's development, an exciting secret spread among the Internet's Apple watchers: press control and click on a text file in the Finder, so the rumor went, and there, in the contextual menu, you'll see a command called Summarize to Clipboard. Using this feature, you can reduce a wordy 15-page document to a couple of concise paragraphs (see the screen shot, "A Mac of Few Words").

Unfortunately, when you try this, you'll discover that the Summarize command is mysteriously missing, unless you've clicked on a *plain* text file (for example, one created in SimpleText). Elementary, my dear Watson: you need DataViz's MacLinkPlus translators.

Alas, MacLinkPlus no longer comes with the Mac OS. (Apple decided that the DataViz licensing fees were an unnecessary expense.) Still, you can install MacLinkPlus from a previous version of the Mac OS, get it bundled with some Mac OS 8.5 reference books, or buy DataViz's (203/268-0030, www.dataviz.com) $100 MacLinkPlus 10.0. You'll be able to summarize only the types of files your version

To solve the problem, delete the alias or—if that doesn't do the trick—disable the Apple Menu Options control panel. If you decide to abandon the Apple Menu Options but don't want to give up those features, try a shareware alternative, such as Fabien Octave's $10 BeHierarchic or Kerry Clendinning's $15 MenuChoice. You can find both of them at www.macworld.com/more/.

TIP 3: PRY OPEN CONTROL PANELS

When you try to open Mac OS 8.5's new Internet or File Exchange control panels, you may be greeted with a message that says: "To use the Internet control panel, you must first install Internet Config Extension version 2.0 or later." Mac OS 8.5 places the correct version of the extension in your System Folder, so why is the message claiming that it's gone?

The reason is that when you install Web browsers—and many other Internet programs—they often overwrite the version you need with an older version. If this happens, you'll get the error message. The solution? Launch the Mac OS 8.5 installer, and choose to custom-install the Internet control panel. In the process, you'll reinstall the 2.0.2 version of Internet Config Extension.

TIP 4: FIX ADOBE TYPE MANAGER

One widely used program that has *not* been updated to work with Mac OS 8.5 (as of this writing) is Adobe Type Manager (ATM). As a result, the program can cause a variety of troublesome symptoms—including system crashes and Type 23 errors—that wouldn't necessarily lead you to suspect ATM as the cause. While you're waiting for the bug-fix update, Adobe recommends the following kludge (which fixes *most* of the reported problems):

1. Change ATM's Preserve: Character Shapes to Preserve: Line Spacing.
2. Turn on ATM's Smooth Font Edges on Screen option, but do not check the Disable Smoothing at Screen Font Point Sizes check box.

Many users have also found that unchecking the Translate Documents Automatically option in Mac OS 8.5's File Exchange control panel eliminated Type 23 errors associated with ATM.

TIP 5: CALM QUARKXPRESS QUIRKS

QuarkXPress users will suffer some oddities when they upgrade to Mac OS 8.5—including display problems such as check boxes missing from dialog boxes. There's an unconventional but effective solution to this problem: install Greg Landweber and Arlo Rose's $25 shareware program Kaleidoscope 2.1. We're not sure *why* it works, but it does.

Having Kaleidoscope installed also serves as a workaround to a problem Palm PDA users have experienced, namely Pilot Desktop application crashes. At press time, 3Com (www.3com.com) released a beta version of MacPac 2.0, which should fix this bug.

Contributing Editor TED LANDAU offers troubleshooting advice for every new Mac OS release, on his MacFixIt Web site (www.macfixit.com).

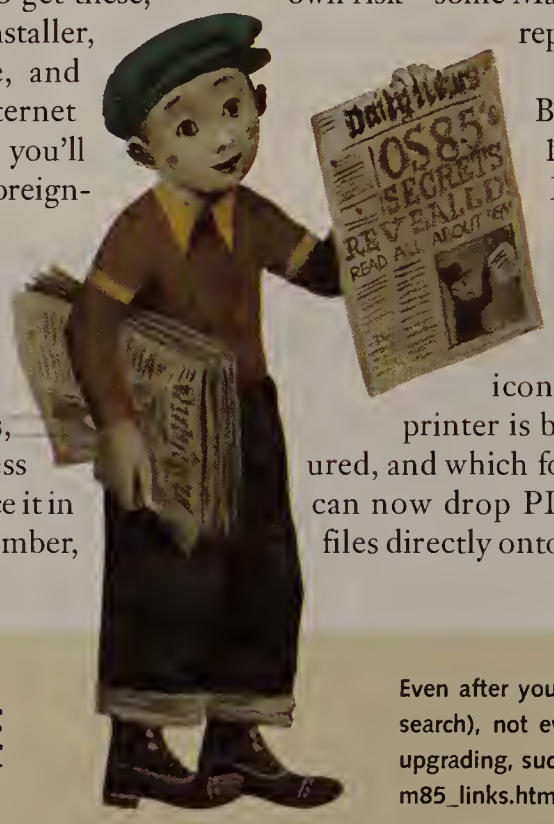
of MacLinkPlus supports. This means you'll need a newer version for files made in Microsoft Word 98, for instance.

Once you're up and running, you can control-click on the Clipboard window repeatedly to boil down summaries to a single sentence. That undocumented trick could come in handy when you're on the receiving end of documents written by, say, long-winded relatives, members of Congress, or lawyers.

A Foreign Affair

The Mac has always been an international player—but never so much as in Mac OS 8.5. For the first time, you can view Japanese, Korean, Chinese, Arabic, Hebrew, and Indian Web pages in their non-Roman alphabets without having to buy any language kits.

To make this possible, the new OS comes with a multimegabyte package of special fonts, but they're not part of the standard installation. To get these, run the Mac OS 8.5 installer, click on Add/Remove, and install Multilingual Internet Access. When it's over, you'll be able to view those foreign-language Web pages.



Another hidden international touch: the new euro currency symbol (€) has been added to built-in fonts, such as Charcoal. Press option-shift-2 to produce it in your documents. Remember, however, that other people won't see your euro symbols on their computers unless they, too, have Mac OS 8.5.

The X-Tips

Following the tracks of OS 8.5's makers can lead into some dark and narrow software corridors. Here, for the bold and the bored, are features even the programmers' bosses probably don't know about.

Memory Lapse Ever notice that the more memory a Mac has, the longer it takes to start up? The reason is that the Mac tests all its memory each time you turn it on. One undocumented Mac OS 8.5 feature, however, lets you bypass these tests altogether.

While pressing ⌘-option, open the Memory control panel. You'll see a secret panel bearing an On/Off switch for Start-up Memory Tests. In theory, turning off these diagnostic tests makes your Mac start up faster. However, do so at your own risk—some Mac-clone owners have reported crashes.

Printer Inspector Before printing that 150-page QuarkXPress document, use the File menu's Get Info command (⌘-I) on a laser printer's desktop icon to see whether the printer is busy, how it's configured, and which fonts it has. Also, you can now drop PICT and PostScript files directly onto the printer desktop icon to print them—without opening a separate application.

Help Tactics The new Mac OS Help mechanism is actually a mini–Web browser that reads HTML help files. That means you can't print anything from the help text—unless you get sneaky.

Launch your favorite Web browser, choose Open from the File menu, and open the Help folder (in your System Folder). Inside the Mac OS Help folder is an index file called Mac OS Help. From here you can access all the help files with your browser and print the text just as you would any Web page.

A Hidden Message As with any truly interesting software, Mac OS 8.5 even contains a clandestine credits display. Press control-option-⌘. The first command in your Apple menu will change to say "About the Mac OS 8.5 Team." Choose it and you'll be treated to a lengthy display of credits and floating icons from this OS's creators.

The Last Word

Holmes and Watson would never have guessed that even software could harbor such secrets, surprises, and strange sights. Mac OS 8.5 has it all. This operating system's hidden talents can make your Mac show off, do more, and hurry up. It's all there—if you know where to look. **m**

DAVID POGUE (www.davidpogue.com) coauthored *Macworld Mac Secrets*, fifth edition, which contains several pounds of Mac OS 8.5 info.

GET UP-TO-DATE

Even after you upgrade Mac OS 8.5 to version 8.5.1 (http://til.info.apple.com/swupdates.nsf/search), not every program will work glitch-free with the new operating system. Some need upgrading, such as these major products. (For a more complete list, visit www.macintouch.com/m85_links.html.) At press time, all updates were free to registered owners of the previous version.

Company	Program	Mac OS 8.5.1 Compatibility	Web Address
3Com	MacPac 1 for PalmPilot and Palm III	Requires MacPac 2.0	palm.3com.com/macintosh/index.html
Connectix	Virtual PC	Requires version 2.1	www.connectix.com/html/
Kensington	Kensington MouseWorks	Requires version 5.05	www.kensington.com/support/mwsmac1.html
LaCie	Silverlining	Requires Silverlining 5.8.3 or Silverlining Lite 2.2.1	www.lacie.com/scripts/support/SilverCompatibility.cfm
MicroMat Computer Systems	TechTool Pro	Requires version 2.1.1	www.micromat.com/micromat/downloads.html
Microsoft	Microsoft Office 98	Requires Mac OS 8.5 Compatibility Update	www.microsoft.com/macoffice/85update.htm
Netopia	Timbuktu Pro	Requires version 4.8	www.netopia.com/software/tb2/mac/latest_version.html
Netscape	Netscape Communicator	Requires version 4.5	www.netscape.com/download/
Symantec	Norton AntiVirus	Requires version 5.03	www.symantec.com/techsupp/files/navm/norton_antivirus_for_macintosh.html
	Norton Utilities 4.0	Requires version 4.01	www.symantec.com/techsupp/files/num/norton_utilities_version_4x_for_macintosh.html

COMING SOON

MICROPROSE
www.microprose.com
WESTLAKE INTERACTIVE

Available soon at your local retailer, or visit the GT Interactive online store:
http://www.gtstore.com or call 800/229-2714

©1997, 1998 MicroProse, Inc. All Rights Reserved. MICROPROSE and FALCON are registered trademarks of MicroProse, Inc. or its affiliated companies. All Rights Reserved. Distributed and published by MacSoft, an affiliate of GT Interactive Software Corp. All other trademarks are the property of their respective companies.

MacSoft®
An affiliate of GT Interactive Software Corp.
www.wizworks.com/macsoft

Choose 30 at www.macworld.com/getinfo

Simply Macworld EXPO

See page 92

Secrets

Sherlock Power Searching

MAKE OS 8.5'S SEARCHING TOOL EVEN MORE POWERFUL

by Ted Landau

CHRIS LENSCH

One of the most impressive new features in Mac OS 8.5 is Sherlock. This replacement for Apple's Find File function does much more than just find files. It also lets you search for a word or group of words within documents (see "Take Your Search Offline"). But what is most compelling about Sherlock is the way it works with the Internet: it lets you do searches on multiple sites simultaneously, right from the desktop. All you have to do, once you're online, is select Sherlock's Search Internet tab, enter a search term, and click on the Search button. In a matter of seconds, Sherlock posts results gathered from multiple sites such as AltaVista, Excite, and Apple's Tech Info Library. Click on any item, and Sherlock displays a small portion of the selected Web page's contents. Double-click on an item, and Sherlock opens your Web browser to that page.

Searching the Internet by using Sherlock could hardly be simpler. But there's room for improvement. Here's how to customize Sherlock to make it even more powerful.

Cast a Wider Net

Consider the list of sites in Sherlock's Search Sites window as nothing more than a starting point. Just about any Web site that has a search engine, such as Yahoo, can be added to the list. All you need is a plug-in file for the Web site.

There are a lot of plug-ins out there for the taking. Apple offers a dozen or so free plug-ins (find them at www.apple.com/sherlock/plugins.html), including one for Apple's own Web site. You can obtain an even wider range of plug-ins from sites such as the Sherlock Internet Search Archives (www.apple-donuts.com/sherlocksearch/index.html) and the Sherlock Collection (http://moriarty.mit.edu/Sherlock/All.html). If you can't find a plug-in for a particular site on any of these lists, check the site itself. It may have its own plug-in posted. It's also a good idea to get the updated version of Sherlock in Mac OS 8.5.1 or later. It comes with many more plug-ins than the original version.

If even this doesn't satisfy your craving for plug-ins, you can create your own. You'll be in familiar territory if you already know something about HTML; the language for writing plug-ins uses many of the same conventions. An Apple Web page (www.apple.com/sherlock/plugindev.html) can help you get started. Alternatively, you might want to follow Gord Lacy's step-

continues

by-step tutorial (www.appledonuts.com/sherlocksearch/howto.html).

To use a new plug-in, simply download it and drag it to your System Folder icon. The next time you use Sherlock, the new site will appear in the list (see "Sherlock's Homes"). As soon as you check a site's check box, it's ready to be searched. (Your Macintosh will put it into the Internet Search Sites folder, inside your System Folder.)

Make Sherlock More Revealing

As your list of plug-ins starts to grow, you'll probably become increasingly frustrated with Sherlock's fixed window size. As it ships, Sherlock allows you to view a maximum of six plug-ins at a time. To end this irritation, install the free Moriarty patch (http://members.aol.com/appleink98/moriarty.htm), which gives Sherlock an expandable window. After installing the patch, you can view as many plug-ins as can fit on your screen.

Moriarty may be unwilling to patch the new version of Sherlock included with Mac OS 8.5.1. If so, an alternative that works fine with this version of the operating system is an extension known as SherlockWindowSize (www.ncal.verio.com/~lsr/programs/index.html). It automatically sizes the Sherlock Search Internet window pane, based on the number of search engine plug-ins that you have installed.

Sherlock's Homes Sherlock plug-in files show up as new Web sites to search. If you run the free Moriarty program, you can even resize the window to see all your sites at once.

Not satisfied that you get a maximum of ten items in the Items Found window when you do a search? No sweat—you can also expand the hit number you get from almost any site to the maximum the site supports. An Apple Tech Info Library file explains how (http://til.info.apple.com/techinfo.nsf/artnum/n58163).

Cast a Narrower Net

Most likely, you won't want all of your plug-ins enabled all the time. For example, there's no point in searching Apple's Tech Info Library to find the lowest price on a car. It's possible that each time you do a search, you'll have to turn on and off the check boxes of different plug-ins. To save time, you can create separate search sets for different occasions so that with one click of the mouse, you switch sets (although you still may have to enable some check boxes). There are several ways to do this:

1. If you have Conflict Catcher 8, choose the Listed by Folder view. Locate the Internet Search Sites folder. You can now create separate sets with plug-ins of your choice.

The Case of the Thwarted Search

OCCASIONALLY, WHEN YOU USE SHERlock to search the Internet, you'll run into problems. For instance, search results may never appear or you'll get an error message. In the worst case, you'll get a freeze or a crash. When trouble strikes, work your way through this checklist.

1. The Find Preferences file (in the Preferences folder of the System Folder) may be corrupted. Go ahead and trash it. A fresh copy will be created the next time you start your Macintosh.

2. If you've added plug-ins, Sherlock may need more memory. To increase memory, select Get Info for the Sherlock application (it's in the Apple Menu Items folder of the System Folder), select Memory from the pop-up menu, and increase the Preferred Memory size.

3. You may need an updated plug-in. To check, select Update Search Sites from Sherlock's Find menu. Sherlock will search for updated versions of plug-ins and then replace old ones with the new ones it finds. (Some plug-ins will automatically update themselves when you try to use them, if a new version is available.)

4. You may have a corrupted plug-in. To check, disable all but one of your plug-ins. See if the problem disappears. If so, repeat this procedure with a different plug-in each time. When the problem resurfaces, you've identified the culprit. Replace the plug-in with a fresh copy. If that fails and no updated version is available, notify the author of the plug-in about the apparent bug.

5. If you double-click on a URL in Sherlock and nothing happens (no browser launches or you get an error message), it's probably because the Mac is preconfigured to use Microsoft Internet Explorer as the default browser but you don't have Explorer installed. If you're using another browser, such as Netscape Navigator, open the Internet control panel and select the Web tab. From the Default Web Browser pop-up menu, select the desired browser.

6. If you connect to the Web from behind a firewall, especially one that needs user authentication, you may have problems using Sherlock. First, make sure you have defined a Web Proxy server, using the Internet control panel. To define a server, select Advanced User Mode from the control panel's Edit menu. Click on the Advanced tab, and then select the Firewalls icon. Here you will be able to enter the needed Web Proxy server data (obtain the specifications from your network administrator). If Sherlock still doesn't work after you've followed these steps, it may be the fault of a bug in Sherlock 2.0. To fix it, get version 2.0.2 of Sherlock, which comes with Mac OS 8.5.1.

You may have a problem that you don't even know about. If you renamed the original Sherlock file or moved it out of the Apple Menu Items folder and later installed Mac OS 8.5.1, the operating system's Installer probably didn't find Sherlock. That means the new version of Sherlock may not have been installed. To make sure you got the latest version, check Sherlock's Get Info window to see if it says version 2.0.2.

If the Internet Search Sites folder is missing from the list, go to the Folders portion of the Preferences panel and click on Add. Set the Starting Folder to the System Folder. Click on the Folder button, and select Internet Search Sites.

2. Instead, you can create search sets with some AppleScripts from Apple (www.apple.com/applescript/sherlock_sets/). You use the scripts in conjunction with OSAMenu, a program included in the AppleScript Extras folder on the Mac OS 8.5 CD.

3. Finally, you can employ a third-party Sherlock set manager. The freeware No Shoot! Sherlock is a popular choice (http://members.macconnect.com/~mercyme/purplee.shtml).

More Sherlock Secrets

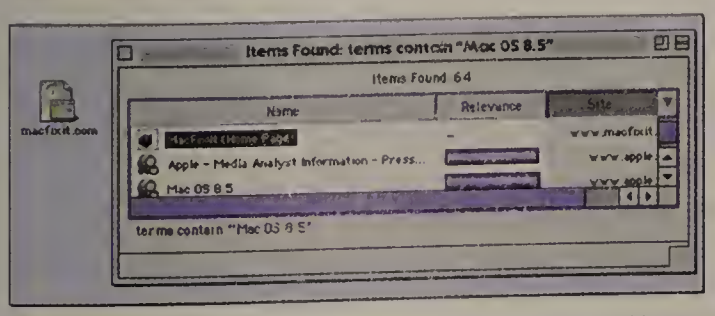
Dig a bit deeper, and you'll find some buried treasure among Sherlock's features. For example, suppose you want to save a list of all the URLs in the Items Found window. No problem. Click in the Items Found window, select all (⌘-A), and then copy (⌘-C). The URLs for all of the items in the list will be copied to the Clipboard, ready for pasting wherever you wish.

You can also save URLs by dragging items from Sherlock's Items Found window to the Desktop. This creates *Internet location files* (basically clippings containing the URLs), on which you can double-click to get to the Web sites (see "Desktop Bookmark").

Is there some text in a document that you would like to use as search criteria? If so, simply highlight the text and control-click on it to bring up a contextual menu. Select the item called Search Internet from the menu, and Sherlock will initiate a search using the highlighted text as the search criteria.

You can also use the same search criteria repeatedly by letting Sherlock save the criteria. So, suppose you want to regularly check the Internet for all pages that mention both Mac OS 8.5 and the iMac. Once you set up and perform the initial search, select Save Search Criteria from Sherlock's File menu. This creates a Saved Internet Search File, on which you can double-click to open Sherlock and initiate the search.

One last trick is an easy way to switch between each of Sherlock's three window panes. Rather than click on Sherlock's tabs, it's more convenient to use keyboard shortcuts. Press ⌘-F to go to the Find File pane, ⌘-G to go to the Search by Content pane, and ⌘-H to go to the Search Internet pane.



Desktop Bookmark To get to a favorite Internet site quickly, just double-click on its *Internet location file*, a file you create by dragging an item from Sherlock to the desktop.

Case Closed

With Sherlock's Search Internet feature, you are no longer limited to searching your local disks from your desktop. You can now search the entire World Wide Web. **m**

Contributing Editor TED LANDAU has Sherlock plug-ins available for his own MacFixIt Web site (www.macfixit.com/extras/sherlock_plugins.shtml).

Take Your Search Offline

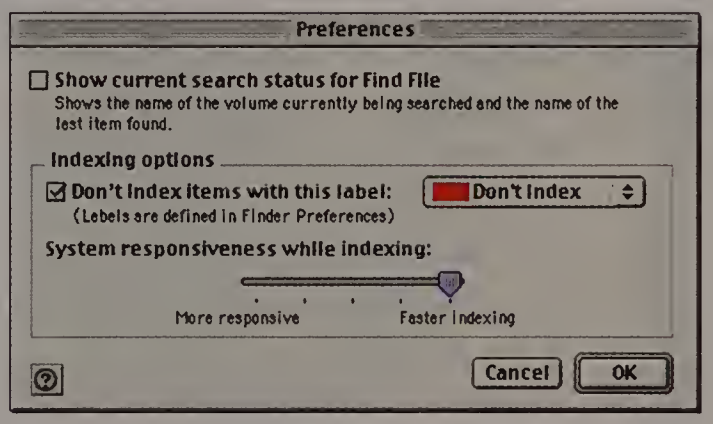
NOT ONLY CAN SHERLOCK FERRET out information on the Internet but it can also do some of its most powerful searching right where it sits—on your hard disk. This reinvigorated Find File program lets you search for words inside your documents (using its Find By Content feature). For instance, you can find all occurrences of the phrase *in the future* in any document. Here's how to make sure these searches are as fast as they can be.

Create an Index Doing a search for words inside documents is amazingly fast *if* you've allowed your Mac to compile its own card catalog (an invisible file in your System Folder called TheFindByContentIndex) of every word in every document. You do that by clicking on Index Volumes (in the Find By Content area), then your hard disk's name, and then the Create Index (or Update Index) button.

Index in Absentia Unfortunately, the indexing process can take hours. Fortunately, you can use the Schedule button to make the dirty work of indexing (and reindexing, to keep the index file current) take place when you're not around—for example, overnight. (In the Find By Content window, click on the Index Volumes button, and then click on the Schedule button.)

Time It Right If you would rather not leave your Mac on all night to do indexing, you can try another technique: use the Preferences command's system-responsiveness slider to give you the right balance between working on your Mac and creating an index. If you move the slider to the left, Sherlock runs in the background, letting you continue to work on the Mac. This means indexing will proceed slowly, however. If indexing speed is of the essence, move the slider all the way to the right (but don't expect to work on the Mac during indexing).

Don't Overdo You can speed the indexing process in yet another way, using the Don't Index Items With This Label check box (in Sherlock's Preferences window). Before indexing, use the Finder's Preferences command to define a special label. For example, you could create a label called Don't Index. Then go on a folder-labeling spree. Apply the Don't Index label to your System Folder, the folders that contain your applications, and all other folders that contain no documents or e-mail. Then, return to the Sherlock program, check the Don't Index Items check box, and specify the Don't Index label (see "Keys to Speed"). You'll be astounded at how much faster the indexing goes.—DAVID POGUE



Keys to Speed To speed up indexing, exclude from the index any folders you don't need to search. Also, move the responsiveness slider all the way to the right.

Simply fun
Simply creative
Simply educational
Simply great for business

Simply Macworld EXPO

There's nothing else like it!

It's simply amazing. In a very short time, vast new horizons have opened up in the Mac market. Anything--and everything--is now possible! Discover the most exciting new possibilities at MACWORLD Expo/Boston '99!

See and demo all the hot new products from hundreds of industry-leading vendors. Stay on top of new developments that could impact your buying decisions. Take advantage of money-saving specials when you buy products right on the show floor! Network with industry experts and make deals with other professionals. MACWORLD Expo is the best place to learn about the hottest solutions for:

- education and development
- advertising and graphic design
- printing and publishing
- home computing
- digital content creation, management and delivery
- the Internet
- software development
- new media
- gaming

Sponsored by:
Macworld
MacWEEK
eMediaweekly.com

Managed by:
IDG EXPO MANAGEMENT COMPANY

Experience
the best at
MACWORLD Expo/Boston --
the coolest place to visit this
summer! You simply have to be at
MACWORLD Expo/Boston
in the Seaport District,
World Trade Center and Seaport Hotel
Exhibits: August 4-6, 1999
Conferences: August 3-6, 1999
Visit www.macworldexpo.com
or call 800-645-EXPO

Yes! Please send me more information on MACWORLD Expo/Boston! I'm interested in: MCW

○ Attending ○ Exhibiting

Name _____

Title _____

Company _____

Address _____

City/State/Zip _____

Phone _____ Fax _____

Email _____

(if you would like to receive information via email about MACWORLD Exp

Mail to: MACWORLD Expo, 1400 Providence Highway,
PO Box 9127, Norwood, MA 02062. Or Fax to: 781.440.0357

THIS IS NOT A REGISTRATION FORM.

Quick Tips

Tips, Tricks, and Shortcuts

by Lon Poole

More applications are adopting the tasty Navigation Services dialog boxes introduced with Mac OS 8.5 for Open, Save, and other file-related commands. Seth D. Kromholz of Ithaca, New York, discovered that you can drag any folder or disk icon from the Finder—even a folder proxy icon from the title bar of a folder window—into an application's Navigation Services dialog box, and the dialog box immediately shows the contents of that folder or disk. Some applications' Navigation Services boxes also recognize dragged aliases of folders or disks, while those of other applications ignore aliases. The only way to tell if aliases work is by trial and error.

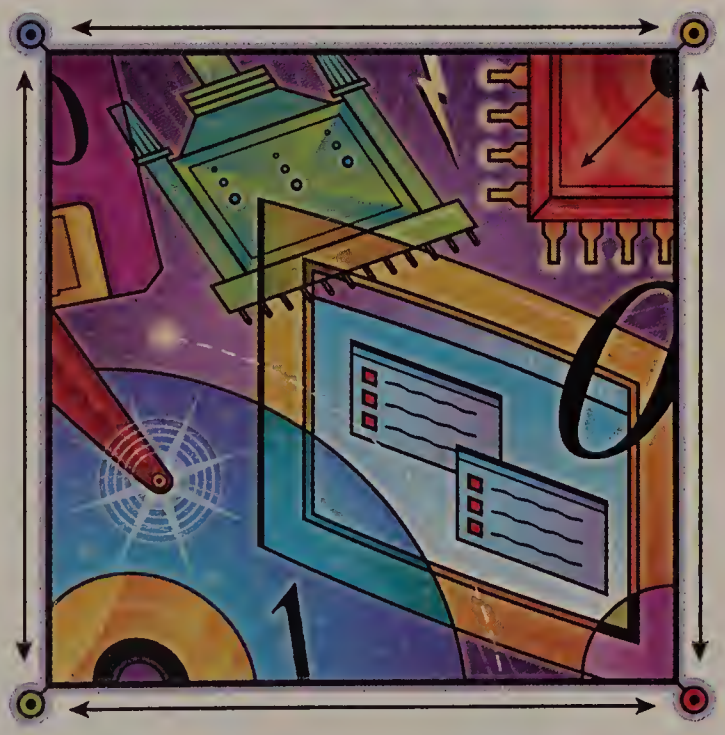
In addition, you can add any item in a Navigation Services dialog box to your Favorites list by dragging the desired item to the Favorites button (the one with the bookmarked icon that looks like a folder with a ribbon on it) at the top of the dialog box.

Setting Page-Setup Defaults

Q. When we print from any of the 11 Macs on our network to any of our 3 Hewlett-Packard LaserJet printers, the LaserWriter 8.1 Page Setup always defaults to the A4 paper size instead of U.S. letter. This happens in ClarisWorks 5, Claris Emailer, FileMaker Pro 4, and other applications, and it's very inconvenient to have to set the paper size for every new document. Is there any way to change the default paper size?

LEONARDO PETERSSEN
Valencia, Carabobo, Venezuela

A. Call up the LaserWriter 8 Page Setup dialog box from within any application (including the Finder), typically by choosing Page Setup from the application's File menu. Change the settings as desired, and then option-click the OK button. An alert then asks whether you want to save the current Page Setup settings as the default settings. (The alert may not appear with your old version of LaserWriter 8, but the current settings still become the default settings.)



This procedure sets specific LaserWriter 8 Page Setup defaults for the program you were using, and also sets the general defaults for any programs that don't have specific defaults set. (Simply repeat the above procedure within a program to set its specific defaults.)

Forcing an iMac to Restart

Q. I use an iMac in school and a Performa 6360 at home. Whenever my Performa freezes, I just press ⌘-control–power-on key, and my computer restarts. But with the iMac, I have to use a paper clip to restart the computer. My friends and I suspect that it's because the keyboard is a USB device, so when the computer freezes the keyboard has no access to the USB drivers. Is there any way to restart an iMac without wasting a paper clip?

KOZO OTA
Westmount, Quebec, Canada

A. Unlike the ADB keyboards used on other Macs, the iMac's USB keyboard is not wired to the computer's reset circuitry and can't restart a frozen or crashed iMac. If the iMac is not frozen or crashed, pressing ⌘-control–power-on restarts it in the same way as pressing the power-on key and clicking the Restart button in the dialog box that appears (a technique that works on any Mac). If your iMac is crashed or frozen, you can restart it by pushing its reset button, located near the USB ports on the side of the iMac and marked with a small triangle. On early iMacs, the button is inside a small hole. This means that you must use a straightened paper clip to push the button. If the reset button doesn't restart the iMac, unplug the iMac for at least 30 seconds and then plug it in again and start up normally.

You can avoid killing paper clips by adopting the solution devised by David L. Stanley of Brookings, Oregon. He took a colored plastic pushpin (Bondi blue, of course) and clipped the pin to about 3/16 inch. Onto this stub he impaled a 1/4-inch piece of double-sticky foam tape. Thus assembled, the device fits into the iMac

continues

JEFFREY PELO

Macworld
BEST of SHOW
1998 SAN FRANCISCO EXPO

CONGRATULATIONS TO THE WINNERS OF THE BEST of SHOW JANUARY '99 EXPO!

Adobe After Effects 4.0
Adobe Systems
www.adobe.com

Amorphium
Play's Electric Image Division
www.amorphium.com

Extensis PhotoGraphics
Extensis
www.extensis.com

G3 Power Macs
Apple Computer
www.apple.com

Game Wizard for iMac
Micro Conversions
www.microconversions.com

Kai's Photo Soap 2.0
MetaCreations
www.metacreations.com

LiveStage
Totally Hip Software
www.totallyhip.com

Microsoft Internet Explorer 4.5
Microsoft
www.microsoft.com

Rage 128
ATI Technologies
www.atitech.com

Virtual Game Station
Connectix
www.connectix.com

Testing Web-Page Designs

THE WEB SHARING FEATURE IN MAC OS 8.X is fine in a networked office or for someone with a full-time Internet connection, but David Wolf of Portland, Oregon, says it seemed useless to him because like many people he has a dial-up Internet connection, and his Mac gets a different Internet address every time he connects. "What are you going to do," Wolf writes, "call up your friends and tell them your Internet address of the day?" But then he discovered Web Sharing to be a useful tool for Web design.

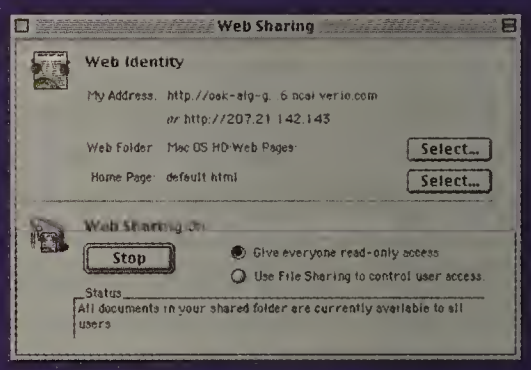
Web Sharing creates a Web server on your Mac, and you can use this server to test your Web design without uploading Web-page files to your ISP's server—a better way to test pages than by specifying a local file URL that begins with file://.

It also more closely resembles the real world. Wolf observes that Netscape Navigator reloads images from local files every time it displays them, which takes longer than displaying the images from memory, as happens when Navigator loads them from a Web server. Wolf says he especially notices the difference when working with rollovers (an image that changes when a mouse pointer rolls over it), noting that testing rollovers using a local file URL either yields jerky results or simply doesn't work.

To test your Web pages, connect to the Internet and start Web Sharing. In the Web Sharing control panel, click the first Select button to specify the folder that contains your Web-page files, and then click the second Select button to specify the home page (see "Mighty Real"). Next click the Start button to start the Web server (shown here as Stop, its state after being clicked). Your Web address appears at the top of the control panel; you can copy it by choosing Copy My Address from the Edit menu. You can also use the Control Strip to start and stop Web Sharing.

Point your Web browser to the address specified at the top of the Web Sharing control panel or Web Sharing Control Strip module. You can now view your pages served over the Internet from files on your own hard drive. This will eliminate the need to send newly updated versions of your files to the ISP server constantly, because you will have worked out the kinks in advance.

As an alternative to using Web Sharing through your dial-up Internet account, you can create your own intranet and give your computer a static IP address for Web Sharing. In the TCP/IP control panel, make a new configuration named Local Network, and change the Configure option to Manually. Enter an IP address of 192.168.1.1 and a Subnet mask of 255.255.255.0—these addresses are from the range approved for local TCP/IP networks (intranets) and will not conflict with addresses on the Internet. Close the control panel, saving the changes, and start up Web Sharing. Now direct your Web browser to http://192.168.1.1, the static address you gave your computer on your intranet. The next time you want to connect to the Internet, don't forget to switch TCP/IP configurations. You can do this with the TCP/IP control panel, the Location Manager Control Strip module, or the shareware Control Strip module TCP CC by Tim Kelley (www.madison-web.com/tkelly/).



Mighty Real The Web Sharing control panel enables a more realistic dry run of your Web designs by creating a local server.

reset hole, with the sticky tape holding it in place. The tape holds the pin in place and cushions it so it makes contact with the reset button only when pressed. If you dislike the do-it-yourself method, you can spend about $10 for a similar premade gadget called the iButton from Joseph C. Lee Company (www.imacbutton.com).

Keep in mind that whenever you force any Mac to restart by pressing ⌘-control–power-on or pushing a reset button, you should use Disk First Aid or another disk-repair utility to verify the start-up disk and repair it as needed.

Although tedious, this precaution does keep problems from snowballing.

Ruling Word 98

TIP Don't waste your screen real estate by leaving the ruler revealed in a Microsoft Word 98 document window. Leave the ruler hidden; when you need it, simply move the pointer to the light gray area beneath the title bar, and presto! All hail the ruler!

CHRIS PAULU
Boston, Massachusetts

More Application Switcher Tricks

TIP Here are some more handy pointers for using Mac OS 8.5's Application Switcher. Russell Hearn of Wethersfield, Connecticut, notes that you can hide the current application's windows while switching to another open application by option-clicking the open app's button in the Application Switcher. Emilio Cruz of Santo Domingo, Dominican Republic, found that you can move the Application Switcher by ⌘-dragging any part of it; this maneuver is particularly useful if the title bar and window frame are hidden. David Roemer of Toledo, Ohio, discovered that you can open a document by dragging it to the button of any compatible application in the Application Switcher. For example, he uses this technique to open pictures with Adobe Photoshop without going through the Easy Open dialog box.

LON POOLE answers readers' questions and selects reader-submitted tips for this monthly column. His latest book is *Macworld Mac OS 8.5 Bible* (IDG Books Worldwide, 1997).

All shareware and freeware mentioned in *Quick Tips* is available from the Macworld Online software library (www.macdownload.com).

We pay $25 to $100 for tips on how to use Macs, peripherals, or software. Please include your full name and address, so that we can send you your payment. Send questions or tips to quicktips@macworld.com or to Macworld Quick Tips, 301 Howard St., 16th Fl., San Francisco, CA 94105. All published submissions become the sole property of *Macworld*. Due to the high volume of mail received, we cannot provide personal responses. m

Run Windows® on your Mac! with Seamless Integration

The Economical OrangePC 620

Whether it's PC games, or educational programs, this Orange®PC solution is easy on your budget. OrangePC game players can run hundreds of PC games previously unavailable to the Mac, such as Quake II™, Forsaken™, and Half-Life™. Schools and universities love the OrangePC 620 because it allows students to run Mac or PC programs from a single workstation. It's the best choice for limited budgets with a complete OrangePC system, including memory, processor and operating system, starting at $549.

High Performance OrangePC 660

Choose the ultimate Windows® compatibility card for your Power Macintosh, the Orange®PC 660. It's awesome performance is based on a 400 MHz Pentium® compatible processor along with a 100 MHz system bus, 512K level 2 cache, and 3D video accelerator. It's an excellent choice for serious commercial/educational users, as well as savvy PC game players who want the best game card for the Mac.

Seamless Integration...

The OrangePC 600 Series has the best Mac/PC integration available. For example, you can copy from a PC window and paste into a Mac window or vise versa. The Windows 95, 98 or NT system can share all of the Mac peripherals - printer, CD, modem, sound, SCSI peripherals, etc. The integration of Windows and the MacOS is seamless and elegant. Try it yourself, with our 30 day money-back guarantee.

Available at:
Micro Center
CompUSA
ClubMac
MacConnection

Orange Micro® inc.
"19 Years of Innovation and Excellence!"
(714) 779-2772 • www.orangemicro.com

© Orange Micro, Inc. 1999

Choose 33 at www.macworld.com/getinfo

Publishers/
Communicators

Printers/
Prepress

Web
Producers

Content/
Creative

The publishing revolution returns to Boston.

Hynes Convention Center • Boston, MA

3 Main Conferences March 1–5, 1999

Special Interest Days/Tutorials March 1–5, 1999

3-Day Exposition March 2–4, 1999

See print and Web publishing technologies that will give you and your organization new competitive life, creative liberty and the pursuit of increased profit. Seybold Seminars, now back in Boston, offers you three focused conference programs that will give you the edge you need: Publishing Strategies provides senior management the insight to harness today's new technologies for improved business advantage; Best Practices for Publishing Workflows enables both printers and publishers to master the latest digital technologies; and Web Publishing looks in-depth at the tools, techniques and visions driving the Web. Plus our unparalleled 3-day publishing technology exposition will arm you with the firepower to colonize new territories. **For your FREE Expo Pass and Advance Program Guide, call or visit our Web site before 2/18/99.**

SEYBOLD SEMINARS BOSTON
PUBLISHING 99

free pass | www.seyboldseminars.com if by Web | 888.800.8922 (+1.781.433.1665) if by phone

ZD ZIFF-DAVIS

©1998 ZD EVENTS All rights reserved Presented by Seybold Seminars All names are the property of their respective holders No one under 18 admitted, including infants

EDSE9AD1

97 GRAPHICS
101 MOTION
105 SOUND

create

GRAPHICS

Paint with Vectors in Illustrator 8

Create Custom Art Brushes for Cool Effects

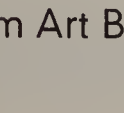
by Deke McClelland

The PostScript stroke is a draftsperson's dream: always smooth, forever precise, never varying in width. It's everything you want in a schematic-design tool. But for creating expressive artwork, the uniform weight of a PostScript stroke is downright inhuman. Like a key on an old-fashioned synthesizer, it produces an inert tone immune to artistic interpretation.

As Adobe invented the fixed-width stroke, it's only fitting that Adobe Illustrator 8 provides a way to escape it. The program's new Brushes palette lets you create strokes that change in response to variables such as stylus pressure and path direction. But by far the most interesting type of new brush in Illustrator 8 is the Art Brush, which lets you stretch a collection of shapes along the length of a path. The result is a new class of graphics that you can bend and distort by manipulating a central spine.

The Art Brush's underlying concept dates back to MetaCreations' Expression (see *Reviews*, March 1997), which serves as the vector equivalent of Painter, MetaCreations' natural-media painting program. The idea is that by taking a graphic that looks like a dollop of paint and fixing it to a path, you create what appears to be a traditional brushstroke (see "Create Traditional Brushstrokes"). But because you're working with vectors, you can edit the brushstroke after you paint it.

See "Paint with Graphics" on Macworld Online, at www.macworld.com/more/, for ideas on using different graphics as a brush.



And the benefits of Art Brushes don't end there. Like Expression, Illustrator 8 lets you take any graphic or piece of clip art and turn it into a brush. This means that you can distort an image or adjust its size and shape via the image's central spine. Text can also be a brush, going beyond the usual text on a path to where letterforms fold and splay as they round a curve (see "Make Flexible Type").

Once you define a brush, you can paint with it using the paintbrush tool or apply it to a path you've drawn with the pen or pencil tools. Then, rather than rendering the brushstroke into its myriad shapes—as Illustrator 7 did with path patterns—Illustrator 8 converts PostScript info to screen QuickDraw and presents only the spine for editing. Simply reshape the spine, as you would any path, to change the angle and sway of the brushstroke. You can also scale the brushstroke's width or flip the brushstroke along its spine to reverse its direction.

The creation of more-intuitive tools to make vector drawing more responsive to the natural habits of artists and designers is a welcome development. And although Adobe can't take credit for inventing the vector brushstroke, the simple structure of Illustrator 8's Brushes palette makes the feature very accessible. Brushes represent vector drawing as it ought to be—applicable and fun. m

---

Contributing Editor DEKE McCLELLAND has been creating artwork on the Macintosh since his service-bureau days in 1985. His books include *Real World Illustrator 8* (Peachpit Press, 1999).

continues

HANK OSUNA

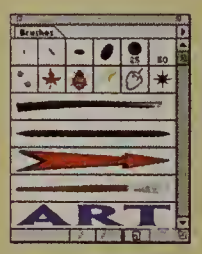
Create Traditional Brushstrokes

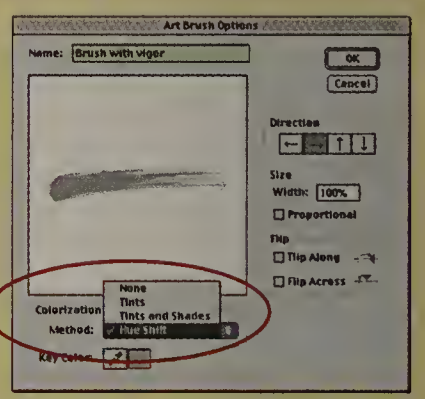
PAINTERLY BRUSHSTROKES ARE HARDLY WHAT YOU EXPECT to create in a vector-based drawing program. But while I wouldn't go so far as to recommend Illustrator 8 for creating a full-blown painting, it's ideally suited to the occasional swash or two. This is because paint in Illustrator is forever wet; after you apply a brushstroke, you can modify its angle and direction, change its color, and even swap it out for a different brush's stroke. The following steps show how to make a brush in Illustrator 8, apply it to a path, and adjust the brushstrokes to achieve a desired effect.

1 Start by drawing your brush outline. It should look like a natural paintbrush stroke, heavier on one end where the brush first contacts the surface and feathered on the end where it's whisked away. Making a believable brush outline takes a bit of practice, but the key is to be sloppy—nature is random, so you should be too. Scribbling with the pencil tool usually delivers the best results. When you're done, fill the brush outline with 50 percent black—this makes it easier to color later.

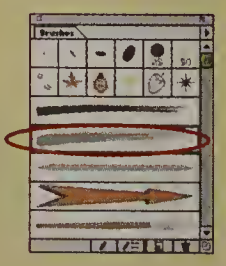
2 Select the path, and drag and drop it onto the Brushes palette. In the New Brush dialog box, select the New Art Brush option and click on OK. In the Art Brush Options dialog box, select Hue Shift from the Colorization Method pop-up menu. This colors the brush according to the standard stroke color specified in the Toolbox. Click on OK to add the brush to the Brushes palette.

TIP If you want your new brush to be available inside all new illustrations, copy the brush outline, open the Adobe Illustrator Startup file found in the Plug-Ins folder, and paste. Then drag the outline into the Brushes palette as directed in step 2. Finally, press ⌘-S to save the Adobe Illustrator Startup file.

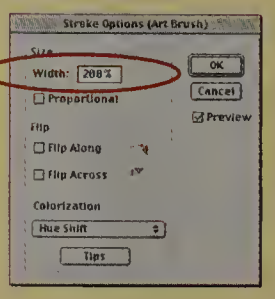




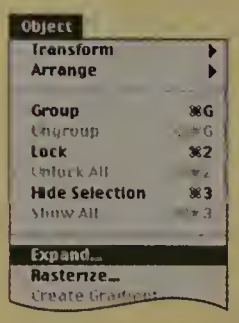
3 Using the pen or pencil tool, draw paths you want to paint with your new brush. Then select the paths and click on the brush in the Brushes palette. Alternatively, you can paint directly with the active brush, using Illustrator's paintbrush tool. Because you selected Hue Shift in the previous step, the brush automatically subscribes to the stroke color (the fill color should be set to None).



4 To edit the appearance of the brushed paths, click on the Options Of Selected Object icon along the bottom of the Brushes palette, second from left. In the Stroke Options dialog box, you can change the width of the brushstrokes by entering a new Width percentage value (the example here shows 200 percent). You can also flip the brushstroke on the path.



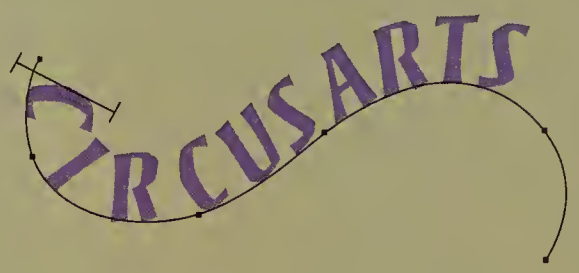
5 As with tile patterns, gradients, and other automated effects, the intensive use of brushes can render an illustration too complex to print. To simplify your illustration, select the brushed paths and choose Expand from the Object menu. Illustrator converts the brushstrokes to filled outlines.



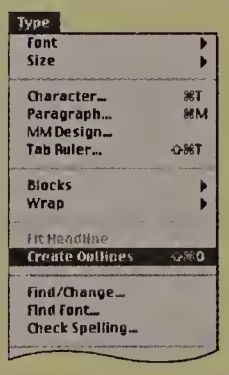
Make Flexible Type

IN A DRAWING PROGRAM, TEXT BECOMES A GRAPHIC. When you apply text as a brush in Illustrator 8, the letters are editable as shapes but not as ASCII characters. This means that you should know exactly how your text should read before you create the brush. While it's not impossible to correct the spelling of a word, it's not exactly convenient either. But in return, you'll get unique effects that you can't achieve any other way.

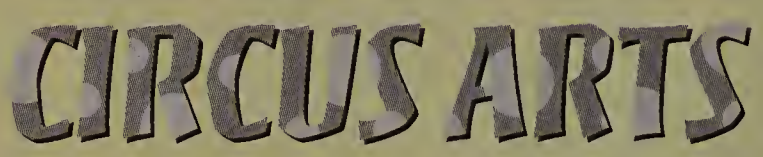
1 I wanted to create a radically wavy logo featuring the words *Circus Arts*. If I created the type along a curve, the type would look fine along the soft curves but would separate and gap around bigger curves. Distorting the letters would fill those gaps, and the only way to distort type on a curve in Illustrator 8 is to make it a brush.



2 After entering *Circus Arts* with the type tool, I cloned the type to have an editable version as a backup. Then I converted the words to a path outline by selecting the type and choosing Create Outlines from the Type menu. Then I filled the outline with 50 percent black so that I could color it more easily on the fly.

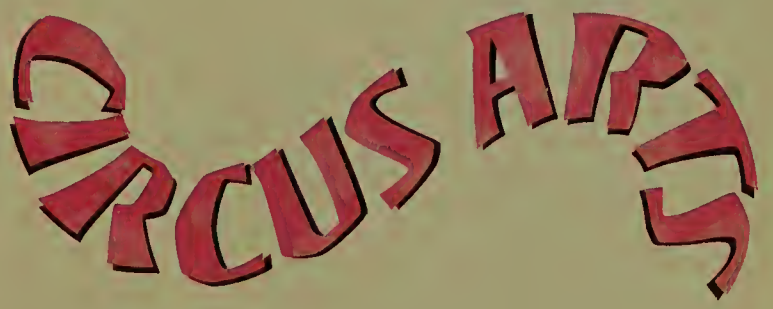


3 So long as Illustrator forces users to work with text as a graphic, I thought I might as well take full advantage of it. I added a drop shadow and filled the type with circles of lighter gray, using the Intersect option in the Pathfinder palette. The result is a logo that would be impossible to attach to a curve using anything but a brush.

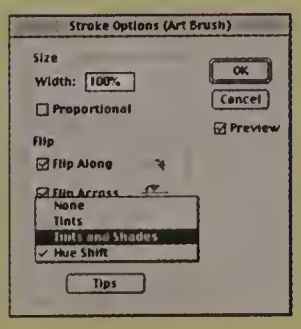


4 After dragging and dropping the type into the Brushes palette (see step 2 of "Create Traditional Brushstrokes"), I assigned the brush to my wavy path. Then I changed the stroke to red to color the logo.

TIP To change the text, edit the backup text and option-drag it onto the old brush in the Brushes palette. In the dialog box that appears, click on Apply To Strokes to update all paths painted with the brush.



5 Illustrator painted my circles the same shade of red as the text, but luckily I could change this without making a new brush. I clicked on the Options Of Selected Object icon in the Brushes palette, and in the Stroke Options dialog box selected Tints And Shades from the Colorization pop-up menu. This told Illustrator to lighten and darken the color according to the gray values, bringing my circles to life.



Redefine the Possible

©1998 MetaCreations Corp. All rights reserved. Kai's Power Tools and KPT are registered trademarks and MetaCreations is a trademark of MetaCreations Corp.

KPT 5
Kai's Power Tools
www.metacreations.com

MetaCreations
800.846.0111 Dept. 5003

Push the Boundaries of QuickTime VR

Invigorate QTVR Object Movies with Animation

by Mike Wooldridge

QuickTime VR object movies are liberally sprinkled throughout the Web, and you've probably seen your fair share of Web sites that let you interactively rotate objects on screen. It's a neat effect the first few times you experience it, but after awhile you know what to expect—been there, spun that.

But some of the best QTVR object movies on the Web and CD-ROM don't limit you to twirling objects in space—you can also open, close, dismantle, and peek inside objects. The trick to making such movies is integrating animation into them, as well as including changes in perspective. If you're trying, for example, to teach a potential customer about a company product, this added animation makes your object movie more informative—not only can people examine the packaging of a product but they can also open the product or watch it in action.

Object-Movie Basics

A QTVR object movie, like a conventional movie, is a collection of image frames. By allowing users to flip through different perspectives of an object on screen, object movies give users the digital equivalent of examining the object in their hands. The simplest object movies comprise 360 degrees' worth of perspectives shot around the object's circumference. This type of object movie—sometimes called a *single-row* movie because of its linear arrangement—lets you spin the object back and forth on a single axis, like a globe.

More-complex object movies also include perspectives shot from above and below the object. These *multirow* movies give users a second axis to play with, letting them tilt the object as well as spin it sideways.

But an object movie doesn't have to be simply a collection of perspectives of a static object—it can also incorporate animation. An animated single-row object movie of a toaster, for instance, might eject the toast when you click and drag.

Adding animation to multirow object movies is more complicated because of their two-dimensional nature. Dragging along one axis with the cursor causes the toaster to pop its toast, but what happens when you drag along the other? You have to consider not only what the object will do when manipulated in each direction but also how the two directions of movement will synchronize with one another.

Most animated two-dimensional movies limit the object animation to one axis, while letting you rotate the object along the other. In my example (see "Go Beyond Simple Spinning Objects"), clicking and dragging the cursor down (along the vertical axis) causes an ice-cream carton to tip over and spill its contents, while dragging left and right (along the horizontal axis) spins the carton in place.

Juggling Axes

Building an animated object movie is similar to doing claymation: you create the movie incrementally, shooting one step of the animation at a time. However, at any point during animation in a two-dimensional object movie, the user may start dragging along the other axis. Therefore, each step in the animation requires shooting not just a single frame but an entire row of frames to account for movement in the other direction.

By getting creative with the two dimensions available to you in object movies, you can transform QuickTime VR into a more fun and engaging experience for your audience. **m**

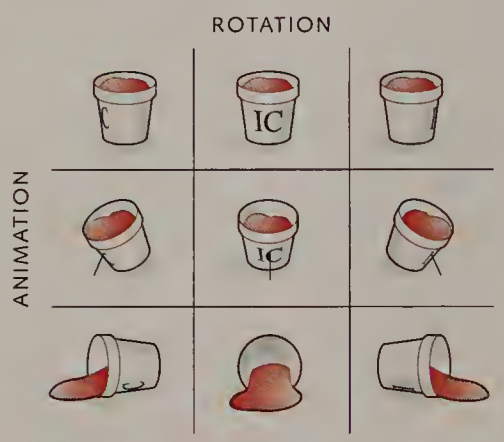
MIKE WOOLDRIDGE is a freelance new-media designer whose "Refrigerator!" QTVR project won an award in Apple Computer's 1998 QuickTime VR contest.

continues

JENNIFER JESSEE

Go Beyond Simple Spinning Objects

Elevate your QuickTime VR object movies to the next level by combining animation along with rotation. Whether you want potential customers to experience your company's product more thoroughly in a virtual environment or you're just trying to entertain, adding animation will lend depth, surprise, and humor to your object movies. Here's how to create one of these über object movies.



1 Plan the Movie

We naturally think of movies as a linear sequence of frames viewed, in forward or reverse, along a single axis. But *object movies* can play along two axes. Think of the frames in an object movie as being arranged in a grid. Sketch out the grid beforehand to visualize both how to organize the overall project and how to shoot the individual frames. Here, a simple three-by-three grid shows the project's basic organization; animation happens on the vertical axis, and changes in perspective (rotation) occur on the horizontal axis. This grid is just a starting point—you'll decide later how many frames will actually make up the rows and columns of your movie.

2 Choose a Capture Device

Try to use a camcorder or digital camera when making object movies; it will be much easier to get good registration (or alignment) between frames and thus avoid jittery effects in the final product. If you shoot on film, the imprecision inherent in the digitizing process will prevent the scene in each picture from aligning perfectly and you'll have to realign the digitized frames during postproduction.

Camcorders and digital cameras have another edge over film cameras: they let you view your work immediately after shooting, so you can see if the lighting, alignment, and centering of the object are up to snuff. For this ice-cream project, I used an Epson PhotoPC 700 that was connected to my Power Computing PowerTower Pro 225. I could control the camera remotely; I never had to touch it and risk shifting the alignment between it and the object platform.

3 Set Up the Scene

Next, decide how to present your object to the camera. Several companies, such as Kaidan (www.kaidan.com) and Peace River Studios (www.peaceriverstudios.com), make high-end object rigs designed for QuickTime VR shoots. For budget-minded hobbyists who want to capture a single axis of rotation, a record turntable or lazy Susan (used here) does just fine.

To make an object appear to be floating in space, use a uniformly colored background that sets off the object: put light-colored objects against a black background and vice versa. I put a coat of black spray paint on my lazy Susan and draped a black sheet behind to contrast with the light-colored ice-cream carton.

4 Start Shooting Frames

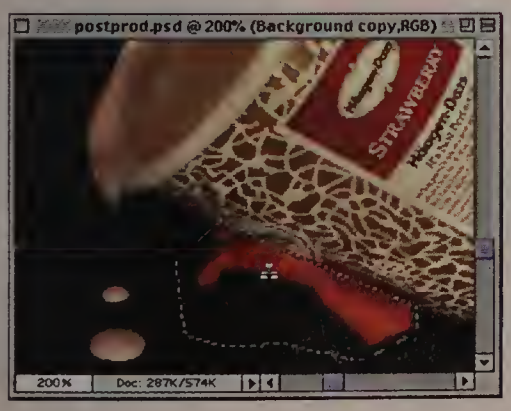
First, decide how many shots to take for each row and column in your grid. Consider the trade-off between motion smoothness and the file size of the final object movie. I sacrificed some smoothness for fewer frames, to keep the file size smaller and more manageable for the Web. For the horizontal axis (changes in perspective), I shot the frames in increments of 30 degrees, for a total of 12 frames per row. (If you're shooting a high-end object movie destined for CD-ROM, you might shoot a frame every 10 degrees.) For the vertical axis (animation), I used only three steps to go from the standing carton to the carton on its side, and three more for the ice cream to melt out. The result is a relatively small QuickTime VR file (less than 400K).

Shoot the frames one row of the grid at a time. I shot 360 degrees' worth of perspectives for each step of the animation. Twelve shots with the upright ice-cream carton turning make up the first row of frames.

5 Shoot More Frames

After you've shot one row of your object movie, move the object to the next step in the animation and shoot another 360 degrees' worth of frames. Repeat this process for each step of your animation. Here, I shot 12 frames for each of the six steps, for a total of 72 frames.

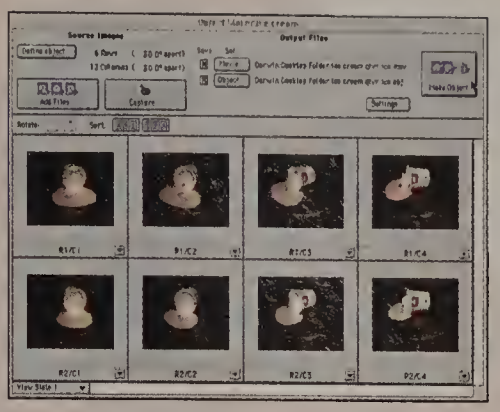
To make sure the frames are synchronized in the final object movie, rotate the object in equal increments for each row and keep the object perfectly still as you rotate it. I marked off 30-degree segments around the edge of the lazy Susan to make sure the rotation increments were precise; to keep the ice-cream carton steady through the rotations, I anchored it to the lazy Susan with modeling clay.



6 Clean Up the Frames

Most object movies require some postproduction work in an image-editing application to clean up artifacts. In high-end work, where an object movie may contain several hundred frames, postproduction can take more time than the actual shoot.

For the ice-cream movie, I brought each frame into Adobe Photoshop, masked the carton, and used the Curves dialog box to get rid of wrinkles in the backdrop cloth and reflections on the lazy Susan. I also erased the modeling clay I used to anchor the carton.



7 Build the Movie

To create the final object movie, simply drag all the frames into an authoring environment such as Apple's QuickTime VR Authoring Studio ($395; 408/996-1010, www.apple.com), shown here, or Roundabout Logic's Widgetizer ($149; 407/327-4500, www.roundaboutlogic.com) and set the playback parameters.

One of the key settings defines whether the rows or columns wrap. In this project, the rows wrap (to let you spin the object repeatedly on the horizontal axis, like a globe) but the columns do not. The authoring applications also let you select from a variety of compression schemes to keep the final file size to a minimum. I used Sorenson Video compression at its low setting and set the frames to 320 by 240 pixels; the final file size of the ice-cream project was 325K.

8 Take It for a Spin

It's a wrap! The completed object movie is made up of 72 frames. Clicking and dragging down on the object causes the ice-cream carton to fall over and spill its contents; clicking and dragging to the side spins the object in place. To test-drive the ice-cream object movie for yourself, go to www.macworld.com/more/ (you'll need QuickTime 3 to view it).

Bookmarks

Apple's QuickTime VR Site
The birthplace of QTVR—read up on background info, and get resources and links straight from the company that invented the technology.
www.apple.com/quicktime/qtvr/

"Refrigerator!"
Explore the contents of Mike Wooldridge's refrigerator via more than 20 QTVR panoramas and animated object movies.
www.mediacosm.com/refrigerator/

Carol Rossi
Experience some amusing QTVR animations, including one of the site's creator.
www.sumthinsumthin.com

John Greenleigh Studios
Take computers, roller skates, and a Volkswagen Beetle for a spin via QTVR object movies created by a design firm whose prominent clients include Apple.
www.greenleigh.com/qtvr.html

eVox Productions
Play around with more cars via object movies created by a design firm with high-profile clients such as Toyota.
www.evox.com

The Jason Project
Tour sunken ships and rain forests via this educational project that uses QuickTime VR, including animated object movies.
www.eds.com/community_affairs/jason/

Publishers/ Communicators

Printers/ Prepress

Web Producers

Content/ Creative

The publishing revolution returns to Boston.

Hynes Convention Center • Boston, MA

3 Main Conferences March 1–5, 1999

Special Interest Days/Tutorials March 1–5, 1999

3-Day Exposition March 2–4, 1999

See print and Web publishing technologies that will give you and your organization new competitive life, creative liberty and the pursuit of increased profit. Seybold Seminars, now back in Boston, offers you three focused conference programs that will give you the edge you need: Publishing Strategies provides senior management the insight to harness today's new technologies for improved business advantage; Best Practices for Publishing Workflows enables both printers and publishers to master the latest digital technologies; and Web Publishing looks in-depth at the tools, techniques and visions driving the Web. Plus our unparalleled 3-day publishing technology exposition will arm you with the firepower to colonize new territories. **For your FREE Expo Pass and Advance Program Guide, call or visit our Web site before 2/18/99.**

SEYBOLD SEMINARS BOSTON
PUBLISHING 99

free pass | www.seyboldseminars.com if by Web | 888.800.8922 (+1.781.433.1665) if by phone

ZD ZIFF DAVIS a SOFTBANK company

©1998 ZD EVENTS All rights reserved Presented by Seybold Seminars All names are the property of their respective holders No one under 16 admitted. Recording rights

EDSE9AD2

Macworld

PROFESSIONAL DISCOUNT ORDER FORM

ANNUAL COVER PRICE	YOUR PROFESSIONAL ONE-YEAR RATE	BONUS STATUS
$95.88	$34.97	MACWORLD CLIP ART CD-ROM

As a Macintosh professional, you're entitled to a reduced rate on Macworld. Return this form now to get complete Mac OS coverage, and save up to 74% off the newsstand price. BONUS: MACWORLD CLIP ART CD-ROM -- FREE with your paid subscription.

Check one: ☐ 1 year (12 issues) for $34.97— **SAVE 64%** ☐ 2 years (24 issues) for $49.97 — **SAVE 74%**

Name (Please Print) 4SNG2

Company

Address

City State Zip

E-mail

REPLY REQUESTED

☐ Payment enclosed. ☐ Bill me later.

RETURN THIS FORM TO GUARANTEE SAVINGS.

Annual newsstand price $95.88. Non US-orders, please add US$20 postage; Canadian GST included. Your FREE CD-ROM will be shipped upon payment.

Check us out on the Web —
http://www.macworld.com

NO POSTAGE
NECESSARY
IF MAILED
IN THE
UNITED STATES

BUSINESS REPLY MAIL

FIRST-CLASS MAIL PERMIT NO. 66 BOULDER, CO

POSTAGE WILL BE PAID BY ADDRESSEE

Macworld®

Subscription Department
PO Box 54506
Boulder CO 80323-4506

Sync Different

Add a MIDI Twist to Your Live Recordings

by Christopher Breen

As MIDI musicians know, with the help of a synthesizer, sequencer, and Macintosh, you can easily build a song from the ground up—create a drum track, loop it, add other instrument tracks, toss in vocals and non-MIDI instruments, mix, and master, and before you know it, hello royalty checks and backstage cheese trays. What may not be so apparent is that MIDI can be just as useful in the postproduction process of live recordings.

For example, replacing basic drum tracks on a live recording is the kind of chore that only the bravest audio engineers attempt. After all, unless the drummer is fueled by machine oil rather than beer, tempos are likely to drift, making it difficult to overdub a completely new drum track. However, using MIDI, it's possible to replace these original acoustic drum tracks with synthetic drums while maintaining the tune's live feel.

In the steps that follow, I talk about using Opcode's Studio Vision Pro to replace drum tracks, but you can use any professional sequencer, such as Mark of the Unicorn's Performer, Steinberg's Cubase VST, or Emagic's Logic.

Getting Connected

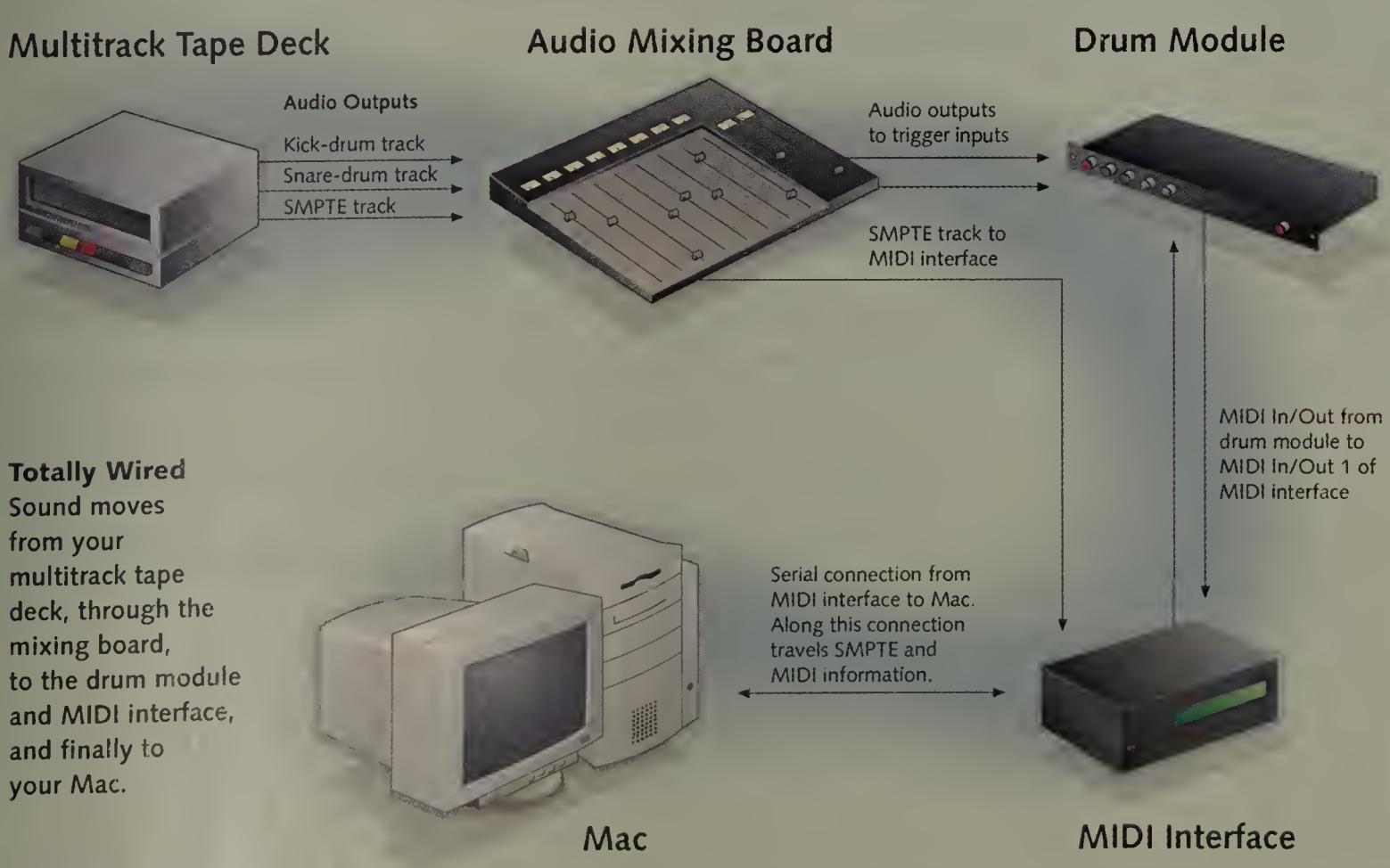
To turn drum tracks on your tape into MIDI notes, you must route the audio signal to the proper destination. Additionally, the tape deck and sequencer must be in sync. Here's how to make all the right hookups.

The sequencer depends on time code to sync with the tape deck, so if you don't already have time code on the tape, stripe your tape with SMPTE. To send the SMPTE track to the sequencer, patch the tape deck to your MIDI interface's SMPTE input port via the mixing board.

Now send the taped drum tracks to the drum module by patching the kick-drum track from the mixing board into the first trigger input on the drum module and the snare-drum track into the second

continues

The Right Connections



Totally Wired
Sound moves from your multitrack tape deck, through the mixing board, to the drum module and MIDI interface, and finally to your Mac.

ARNE HURTY

trigger input. (At press time, Alesis [310/255-3400, www.alesis.com] was the only company that offered drum modules with trigger inputs.) Be sure to assign a different MIDI note value for the two triggers—for example, have trigger 1 output MIDI note number 36 (C1, the note name associated with a General MIDI kick drum) and trigger 2 output MIDI note number 38 (D1, the note name associated with a General MIDI snare drum).

Play the tape to adjust input levels on the drum module. If the MIDI drums trigger too readily or fail to trigger on quiet notes, adjust the input sensitivity on the drum module and the output on the mixing board. It's better to err on the side of triggering extra notes—you can fix those later by filtering out notes below a certain velocity (see Step 2).

Alternative Projects

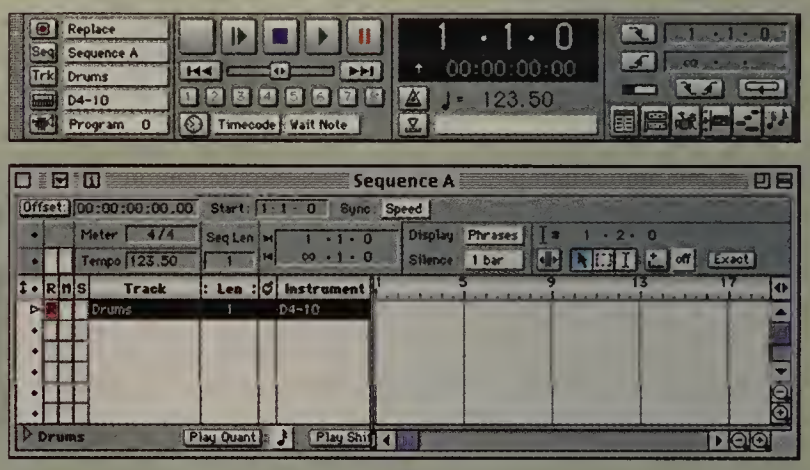
Granted, overdubbing MIDI drum tracks onto a live recording isn't the kind of project you're going to tackle every day, but many of the techniques in this article can be used in other projects where

The Sequence of Events

Step 1: Set Up Your Sequencer

ONCE YOU SET UP YOUR MIDI SYSTEM (SEE THE SIDEBAR "The Right Connections"), the next step is to configure a sequencer, such as Studio Vision Pro, so that it records MIDI from the correct source and syncs to the time-code track.

In Studio Vision Pro (which I'll refer to as Vision), choose Enable Input Devices from the Setups menu and select the drum module as an input device. This ensures that Vision records MIDI information generated by the drum module. Select MIDI Timecode as your sync source, and choose the Wait For Note option so that Vision starts recording when it detects the first MIDI event. Record-enable a track in the sequencer—this will be your MIDI drum track—and select the drum module as the instrument source. Press Vision's record button, and start the tape a few seconds before the beginning of the tune to give the tape deck and sequencer time to sync up. Play the tune all the way through, and stop the tape at the end. The MIDI kick- and snare-drum parts should now appear in the track.

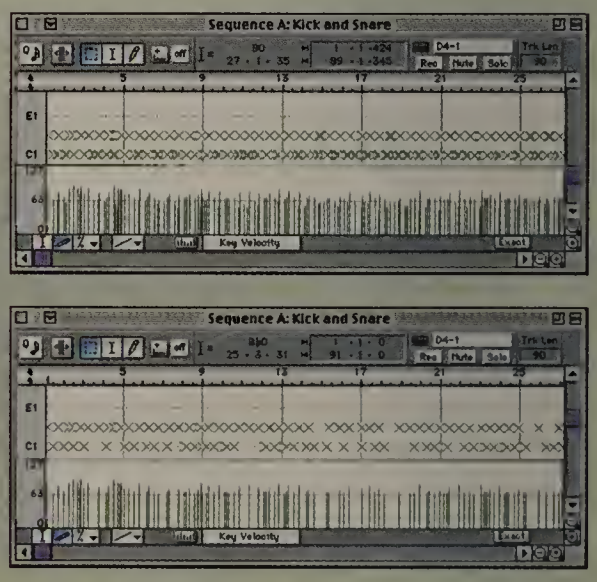


Ready to Roll With Timecode set as the sync source and the drum machine chosen as the input source, Vision is ready to record.

Step 2: Filter False Triggers

DRUM TRIGGERS ARE NOT AS ACCURATE AS THE HUMAN ear and usually only approximate a drummer's performance. In this step you'll use a filter to remove the most obvious extra notes.

When triggers misfire, they sometimes play repeated notes. These notes are often quieter than the ones you want to keep. To clean out most of the unwanted notes, use a filter to remove those that fall below a certain velocity. For example, if most of your snare hits have a velocity of 90 and over, create a filter that selects only the notes with a velocity of 80 or less and then delete those notes. Now play back your track and delete any stray double-hits that escaped the filter. Insert any notes that weren't recorded.



Too Many Notes Because drum triggers don't track precisely, you tend to get extra notes (top). By applying a velocity filter, you can weed out many false triggers, resulting in a cleaner drum part (above).

a tune is based on a freely played performance. Here are a couple of other ways to use MIDI for postproduction work.

• The reclocking technique employed in Step 3 can easily be applied to a freely played piano solo in which you wish to add—and quantize—more instruments.

• Skip the click track altogether if you have a steady, rhythmic track—such as a MIDI bass-guitar part or the left-hand portion of a piano part. Just copy that track, strip out those notes that don't outline the beat, and apply the Reclock command to that track. **m**

Before beginning his illustrious writing career, Contributing Editor CHRISTOPHER BREEN was a professional musician for 15 years.

WHAT YOU NEED

- Multitrack tape deck
- Mixing board
- Drum module with trigger inputs
- MIDI interface with SMPTE generator/reader
- Professional MIDI sequencer

Step 3: Turn the Beat Around

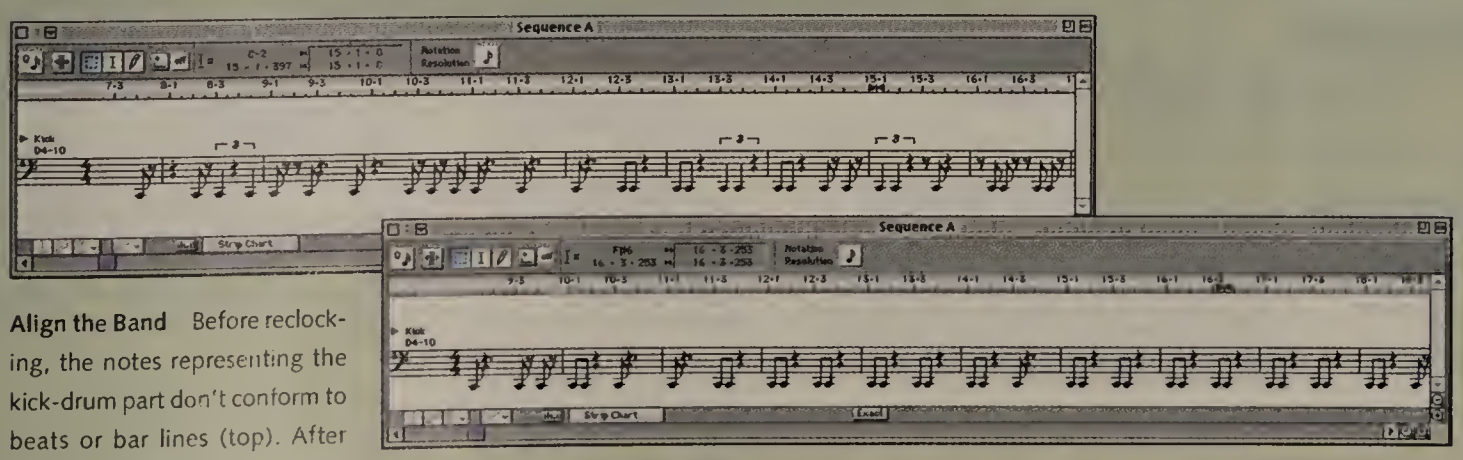
IF YOUR ONLY GOAL WERE TO REPLACE THE KICK and snare on your live track, you'd be nearly done. All that would remain would be to tinker with the velocities and timing of the MIDI drums and record these MIDI tracks back to tape. But why stop now when you have the opportunity to make your upcoming MIDI overdubs easier by following one more procedure?

If you glance at the kick and snare parts, you'll notice that they don't line up with the sequence's bar lines and beats. This means that you won't be able to *quantize* (align notes to a rhythmic grid) additional MIDI parts with beats and bar lines, much less quantize the kick and snare parts you've just recorded. Therefore, you must impose order on these bars and beats by moving the sequence's bar lines to match what the kick and snare are playing. You'll do that by creating a click track and using Vision's Reclock command to create a new tempo map based on that click track (see "Align the Band"). If necessary, then move the drum parts so that they begin at the right time. Here's how.

Rewind the tape to the beginning of the song, record-enable a new MIDI track, and select a MIDI controller—a MIDI keyboard, for example—to record notes into that track. Choose that controller as your input source. Press Vision's Record button; start the tape; and on the controller, play a single note—middle C, for example—on each quarter note. Continue tapping out quarter notes until the tune ends. A steady stream of quarter notes should appear in the track you just recorded. Now listen to the tape with your quarter-note accompaniment. If there are gross timing errors, fix them.

The track you just recorded is the outline for your new tempo map—it establishes where the beats and bar lines go. To create the tempo map, select the notes in this track and choose Vision's Reclock command. The sequencer now creates bar lines and beats around the notes you played.

Reclocking sometimes causes the sequence to shift in time—throwing it out of sync with the tape. If the sequence is horribly out of sync, use the sequencer's offset command to shift the sequence forward or backward in time. If it's just a little off, consider using your sequencer's Play Shift function to incrementally move the snare- and kick-drum beats forward or backward.



Align the Band Before reclocking, the notes representing the kick-drum part don't conform to beats or bar lines (top). After reclocking, the kick-drum notes line up nicely (bottom).

REAL WORLD

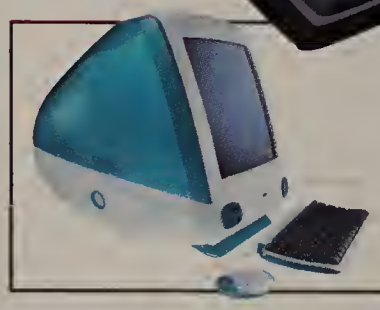
Setting new standards for portable design and performance

Apple® PowerBook® G3 Series

• 233MHz PowerPC G3	• 266MHz PowerPC G3	• 300MHz PowerPC G3	• 300MHz PowerPC G3
• 32MB RAM	• 64MB RAM	• 64MB RAM	• 64MB RAM
• 2GB hard drive	• 4GB hard drive	• 8GB hard drive	• 8GB hard drive
• 20X CD-ROM drive	• 20X CD-ROM drive	• 20X CD-ROM drive	• DVD-ROM drive
• 14.1" active matrix	• 14.1" active matrix	• 14.1" active matrix	• 14.1" active matrix
• 56Kbps modem	• 56Kbps modem	• 56Kbps modem	• 56Kbps modem
• 10BASE-T Ethernet	• 10BASE-T Ethernet	• 10BASE-T Ethernet	• 10BASE-T Ethernet
• 2" thick	• 2" thick	• 2" thick	• 2" thick
• 7.2 lbs	• 7.2 lbs	• 7.2 lbs	• 7.2 lbs
$2499.00	**$2999.00**	**$3999.00**	**$4399.00**
CDW 129396	CDW 129401	CDW 136080	CDW 128972

CDW is a $1.6 billion, Fortune 1000 company. In September 1998, Fortune magazine listed CDW as one of "America's Fastest Growing Companies" for the second consecutive year. CDW is an Apple® Authorized Catalog Reseller.

Authorized Catalog Reseller



Apple® iMac™

✦ 233MHz PowerPC™ G3 processor ✦ 512KB backside Level 2 cache ✦ 32MB SDRAM ✦ 4GB IDE hard drive ✦ 24X CD-ROM drive ✦ 56Kbps (K56flex and V.90) modem

$1299.00 CDW 135728

CDW® DIRECTORY

PC sales	800-800-4239
Mac sales	800-509-4239
Corporate sales	800-280-4239
Corporate software sales	800-294-4239
Government and Education sales	800-808-4239
Networking sales	800-377-4239

CDW® TELEPHONE HOURS

Sales
Monday-Friday 7 a.m.-9 p.m. CT
Saturday 9 a.m.-5 p.m. CT
Tech Support/Returns for Customers
800-383-4239
Monday-Friday 7 a.m-9 p.m. CT
Saturday 9 a.m.-5 p.m. CT

BUY WITH CONFIDENCE CDW® IS A NASDAQ TRADED COMPANY
TICKER SYMBOL CDWC D & B rated 5A1
Duns 10-762-7952

Credit card charges are not submitted until time of shipment. For your protection, we ship only to your credit card's verified billing address. Shipping and handling charges apply; please ask your CDW account manager for details. Before returning any product, you must obtain an RMA number. Non-defective returns are subject to a restocking fee. Software, chips and other electronic components are not returnable. Allow 10 business days for shipping when paying by personal check. All pricing subject to change. For all prices, products and offers, CDW reserves the right to make adjustments due to changing market conditions, product discontinuation, manufacturer price changes, errors in advertisements or other extenuating circumstances. All trademarks and registered trademarks are the sole property of their respective owners.

MONITORS

APPLE

ColorSync 17 17" (16.1" view) 0.26mm	699.00
ColorSync 20 20" (19" view) 0.26mm	1499.00
MultipleScan 720 17" (16" view) 0.28mm	499.00

MITSUBISHI

87TXM 17" (16" view) 0.25mm AG	519.05
91TXM 21" (19.7" view) 0.28mm AG	1049.07

PHILIPS MAGNAVOX

107S 17" (16.2" view) 0.28mm	267.11
109S 19" (17.9" view) 0.26mm	459.00

NEC

A500 15" (13.8" view) 0.28mm	197.45
E500 15" (13.8" view) 0.25mm	276.76
A700 17" (15.6" view) 0.28mm	384.36
E700 17" (15.6" view) 0.25mm	528.98
P750 17" (15.6" view) 0.25mm	618.90
E900 19" (18" view) 0.28mm	595.04
MultiSync P1250+ 21" (19.6" view) 0.28mm	1094.65

SONY

100ES 15" (14" view) 0.25mm	235.31
200ES 17" (16" view) 0.25mm	394.56
400PS 19" (18" view) 0.27mm	775.01
500PS 21" (19.8" view) 0.26mm	1239.33

VIEWSONIC

GS771 17" (16" view) 0.27mm	368.50
G790 19" (18" view) 0.26mm	587.64
G800 20" (18.4" view) 0.28mm	949.23
G810 21" (20" view) 0.25mm	949.23
P775 17" (16" view) 0.25mm	508.60
PS790 19" (18" view) 0.25mm	549.95
PT813 21" (20" view) 0.28mm AG	1108.64
P815 21" (20" view) 0.25mm	1218.17

VIDEO BOARDS

ATI

Nexus GA 8MB PCI	497.37
Xclaim TV external TV tuner	86.82
Xclaim 3D RAGE PRO 4MB PCI	117.06
Xclaim 3D RAGE PRO 8MB PCI	158.73

IXMICRO

Ultimate Rez 2D/3D 8MB PCI	468.80
ix3D Pro Rez 8MB PCI Power Mac	287.91
Twin Turbo 8MB PCI Power Mac	417.32

COMMUNICATIONS

3COM

Megahertz 33.6 Ethernet 10BT PC Card w/RJ11	314.18
Courier I-modem	346.82

GLOBAL VILLAGE

TelePort 56K V.90 external	134.03
56Kbps fax/modem PC Card	179.09
56Kbps fax/modem/Ethernet PC Card	218.66

3COM/U.S. ROBOTICS

Sportster 33.6 external	106.71
Sportster 56K Faxmodem external	147.99

DATA STORAGE

IOMEGA

Zip drive 100MB external USB for iMac	149.95
Zip drive 100MB internal	119.95
ZipPlus drive 100MB external	169.95
100MB Zip disk 3-pack	49.95
Zip drive 250MB external SCSI	199.95
250MB Zip disk 4-pack	69.95
Jaz drive 2GB internal	349.95
Jaz drive 2GB external	349.95
2GB Jaz disk 3-pack	299.95

DATA STORAGE

LACIE

36X CD external	159.00
4X8 CD-Recordable external	499.00
4X12 CD-Recordable external	399.00
DVD-RAM external	799.00
2.1GB Quantum Ultra SCSI-3 internal	229.00
3.2GB Quantum ST Ultra SCSI-3 internal	239.00
6.4GB Quantum ST Ultra SCSI-3 internal	419.00
9.1GB Quantum Ultra SCSI-3 internal	529.00
3GB Apple drive Ultra SCSI-3 external	379.00
4GB Apple drive Ultra SCSI-3 external	419.00

QUANTUM

2.1GB Fireball SE Ultra SCSI-3	228.95
3.2GB Fireball SE Ultra SCSI-3	276.26
6.4GB Fireball SE Ultra SCSI-3	403.76
8.4GB Fireball SE Ultra SCSI-3	519.27

SCANNERS

AGFA

SnapScan 1236S scanner	237.88
SnapScan 310 flatbed scanner	95.70
Duoscan T1200 flatbed scanner	643.72

EPSON

Expression 636 Executive 2 scanner	599.00
Expression 636 Artist scanner	799.00
Expression 636 Professional scanner	999.00
Expression 836XL scanner	2499.00

MICROTEK

ScanMaker 4 Dual scanner	649.38
ScanMaker 9600XL scanner	1393.57
ScanMaker X6 scanner	154.43
ScanMaker X6EL scanner	228.95

NIKON

Super CoolScan LS 2000 film scanner	1815.91

UMAX

Astra 610S flatbed scanner	99.00
Astra 1220S flatbed scanner	179.00
Astra 1220U USB flatbed scanner	149.00
PowerLook II Duo Advance flatbed scanner	1095.00
Mirage IIse flatbed scanner w/MagicScan software	2595.00

VISIONEER

PaperPort Strobe scanner	244.97

PRINTERS

APPLE

LaserWriter 8500	1723.59

EPSON

Stylus Color 800	219.00
Stylus Color 850	349.00
Stylus Color 1520	499.00
Stylus Color 3000	1299.00
Stylus Photo 700	249.00
Stylus Photo Ex	499.00

HEWLETT-PACKARD

HP DeskJet 340 portable ink jet printer	277.08
HP DeskJet 1120Cse printer	499.00
HP LaserJet 6MP printer	915.40
HP LaserJet 4000N printer	1389.99
HP LaserJet 8000DN printer	3158.35

DIGITAL IMAGING

AGFA

ePhoto 780 digital camera	388.55
ePhoto 1280 digital camera	599.05

EPSON

PhotoPC 700 digital camera	499.00

KODAK SOLUTIONS

DC120 digital camera w/Zoom lens	455.95

NIKON

Coolpix 900 digital camera	727.95

All products sold by CDW are third party products and are subject to the warranties and representations of the applicable manulacturers, including but not limited to Y2K compliance. Accordingly, CDW makes no representation or warranty with respect to the Y2K compliance of products sold.
56K modems are capable of 56Kbps downloads, however, current regulations limit download speed to 53Kbps. Internet connectivity requires access services from an Internet access provider. Contact your local access provider for rates, terms and conditions.

CDW™

Computing Solutions Built for Business™

800-509-4239
www.cdw.com

©1999 CDW® Computer Centers, Inc. 200 N. Milwaukee Avenue, Vernon Hills, IL 60061 MW4373A 3/99

Macworld Advertiser Index

Say you saw it in Macworld. To purchase products advertised in this issue call the phone numbers below or log onto Macworld GetInfo at www.macworld.com/getinfo for FREE product information.

Page No.	Advertiser	getinfo	Phone
20	3Com	—	—
8	AEC Software	203	800/450-1982
63	Agfa Corporation	158	—
20	ALSOFT	140	800/257-6381
73	American Power Conversion	—	888/289-APCC
6	Anthro	—	800/325-3841
IFC,1	Apple Computer	—	—
128-133	APS Technologies	62	800/285-0638
51	ATI Technologies, Inc.	256	—
53	ATI Technologies, Inc.	256	—
55	ATI Technologies, Inc.	256	—
138	Bottom Line Distribution	221	800/990-5693
108	CDW Computer Centers, Inc.	2	800/509-4239
134,135	Club Mac	96	800/CLUB MAC
10	Dantz Development	26	800/225-4880
56,57	Diehl Graphsoft	46	410/290-5114
4,5	GCC Technologies	43	800/422-7777
24,25	Heidelberg CPS	17	—
58	HireKnowledge	207	800/937-3622
7	Iiyama North America	—	800/ 394-4335
31	Infowave	32	800/663-6222
59	Interland, Inc	10	800/599-0547
16	Internal Revenue Service	40	—
21	Iomega-JAZ	—	—
141	J&R Computerworld	282	800/221-8180
BC	Kensington	1	—
12,13	La Cie	—	—
120-127	MacMall	131	—
14,15,19	Macromedia	37	—
52	MacSoft	29	800-229-2714
54	MacSoft	28	800-229-2714
87	MacSoft	30	800-229-2714
111-119	MacWarehouse	150	800/434-3035
88,92	Macworld Expo	—	—
140	Megahaus	—	—
100	MetaCreations Corp	5	800/ 846-0111
26	MicroMat	67	800/829-6227
IBC	Newer Technology	55	316/943-0222
95	Orange Micro	33	714/ 779-2772
139	ProDirect	135	800/524-9952
32,33	Quark	77	800/ 995-4343
18	RealSoftware	93	512/292-9988
96,104	Seybold	—	—
37-44	Silicon Graphics	215	—
136,137	The Mac Zone	71	800/436-0606
64,65	ViewSonic	—	800/ 888-8583
9	Vimage	44	877/4VIMAGE
60	VST Technologiec, Inc.	73	508/263-9700
11	XANTÉ Corporation	112	800/926-8839

Macworld Product Index

A quick and easy product index from Macworld. Simply use this index to find the page or advertiser of the products which interest you. Then log onto GetInfo at www.macworld.com/getinfo to request more information. You can choose to have the information delivered too you by e-mail, postal mail or telephone.

SOFTWARE

BUSINESS

Page No.	Advertiser	getinfo
8	AEC Software	203

CAD/CAM

Page No.	Advertiser	getinfo
56,57	Diehl Graphsoft	46

ENTERTAINMENT

Page No.	Advertiser	getinfo
52	MacSoft	29
54	MacSoft	28
87	MacSoft	30

GRAPHICS/DTP

Page No.	Advertiser	getinfo
14,15,19	Macromedia	37
100	MetaCreations Corp	5
32,33	Quark	77

MISCELLANEOUS

Page No.	Advertiser	getinfo
16	Internal Revenue Service	40

UTILITIES

Page No.	Advertiser	getinfo
20	ALSOFT	140
10	Dantz Development	26
31	Infowave	32
26	MicroMat	67
18	RealSoftware	93

HARDWARE

BOARDS

Page No.	Advertiser	getinfo
51	ATI Technologies, Inc.	256
53	ATI Technologies, Inc.	256
55	ATI Technologies, Inc.	256
IBC	Newer Technology	55
95	Orange Micro	33
9	Vimage	44

COMPUTER SYSTEMS

Page No.	Advertiser	getinfo
128-131	APS Technologies	62

DIGITIZERS/SCANNERS

Page No.	Advertiser	getinfo
63	Agfa Corporation	158
24,25	Heidelberg CPS	17

DISPLAY

Page No.	Advertiser	getinfo
7	Iiyama North America	—
64,65	ViewSonic	—

EXPANSIONS/UPGRADES

Page No.	Advertiser	getinfo
9	Vimage	44

HARD DISKS/STORAGE

Page No.	Advertiser	getinfo
138	Bottom Line Distribution	221
21	Iomega-JAZ	—
12,13	La Cie	—
139	ProDirect	135

INPUT DEVICES

Page No.	Advertiser	getinfo
BC	Kensington	1

MISCELLANEOUS

Page No.	Advertiser	getinfo
73	American Power Conversion	—

MODEMS

Page No.	Advertiser	getinfo
22	3Com	—

POWERBOOK

Page No.	Advertiser	getinfo
60	VST Technologies, Inc.	73

PRINTERS

Page No.	Advertiser	getinfo
134,135	Club Mac	112
4,5	GCC Technologies	43
11	XANTÉ Corporation	112

SECURITY

Page No.	Advertiser	getinfo
73	American Power Conversion	—

SYSTEMS

Page No.	Advertiser	getinfo
IFC,1	Apple Computer	—
37-44	Silicon Graphics	215

MAIL ORDER

Page No.	Advertiser	getinfo
128-131	APS Technologies	62
138	Bottom Line Distribution	221
108	CDW Computer Centers, Inc.	2
134,135	Club Mac	96
141	J&R Computerworld	282
120-127	MacMall	131
111-119	MacWarehouse	150
140	Megahaus	—
139	ProDirect	135
136,137	The Mac Zone	71

ACCESSORIES

FURNITURE

Page No.	Advertiser	getinfo
6	Anthro	—

SERVICES

MISCELLANEOUS

Page No.	Advertiser	getinfo
58	Hire Knowledge	207

ON LINE

Page No.	Advertiser	getinfo
59	Interland, Inc	10

DIRECTORY 166

March 1999, Volume 16, Number 3 Macworld (ISSN 0741-8647) is published monthly by Mac Publishing, L.L.C. Editorial and business offices: 301 Howard St., 16th Fl., San Francisco, CA 94105, 415/243-0505. Subscription orders and inquiries should be directed to 303/665-8930. Subscription rates are $34.97 for 12 issues, $59.97 for 24 issues, and $79.97 for 36 issues. Foreign orders must be prepaid in U.S. funds with additional postage. Add $20 per year for postage for Canada, Mexico, and all surface mail to foreign countries. Add $70 postage for air mail to foreign countries. Periodicals postage paid at San Francisco, California, and at additional mailing offices. Postmaster: Send address changes to Macworld, P.O. Box 54529, Boulder, CO 80328. Printed in the U.S.A.

Turn the page to see the New iMac/266MHz G3s!

MacWAREHOUSE®

Your #1 Source for Mac™ Systems and Products—since 1987!

9 PAGES PACKED WITH GREAT MAC DEALS!

iMac/233MHz G3

Now only

$999! was ~~$1299~~

Ask for item # CPU1260.

PRICE SLASHED!

- 233MHz PowerPC G3 processor
- Built-in 15" color monitor
- 4.0GB hard drive
- 32MB SDRAM (256MB max.)
- 24X CD-ROM drive
- 56K modem
- 512K Backside Level 2 cache
- 6MB VRAM
- 10/100Base-T Ethernet

PowerPC G3! Furiously-Fast Processor

Authorized Catalog Reseller

New G3s Now Available!

Authorized Catalog Reseller

The New Apple Power Mac G3s!

See page 4 of 9 for details!

New Apple iMac G3s!

Equipped with the new PowerPC G3! Furiously-Fast Processor

See page 2 of 9 for details!

See the complete line of G3s at www.apple.warehouse.com

APPLE iMac G3

Only **$899!***

Item # RCPU1260

- 233MHz PowerPC G3 processor
- 32MB RAM (256MB max.)
- 4.0GB hard drive • 24X CD-ROM drive
- 15" built-in color monitor
- 56K modem

See page 6 of 9 for details!

*Product is reconditioned by an Apple Authorized Service Provider. Reconditioned computers may not include original application software. 90 days parts and labor warranty. All sales final. While supplies last.

Many other reconditioned Apple systems available. Call for details.

MAC OS 8.5

As low as **$89.95!***

Item # SYS0292

FREE** Cyber Patrol, Solitaire Mania, Art Manía 10,000, Virex, & Compton's Interactive Encyclopedia when you purchase Mac OS 8.5! Ask for item # AAA0735.

- New PowerPC native AppleScript — runs five times faster than previous versions!
- New Sherlock "Find"— easily search the Web with multiple search engines and instantly get results!

See page 7 of 9 for details!

*Price after MacWAREHOUSE $10 mail-in rebate. Price before rebate is $99.95. Offer expires 2/15/99. Limit one rebate per customer (or total of 5 rebates per customer site). Rebate coupon and full details available at www.appleos85.warehouse.com or call customer service at 1-800-390-0706.
**$3.95 shipping and handling applies. Shipped in promotional packaging. While supplies last.

NEW LOW PRICE! STYLUS 740 PRINTER

Only **$249.95!** was ~~$279.95~~

USB Compatible!

Item # PR14065

- 1440 x 720 dpi
- USB compatible
- 6ppm black/5ppm color
- Smaller ink drops for amazing detail

See page 2 of 9 for details!

EPSON®

NEW! SONY MAVICA FD-91 DIGITAL CAMERA

Only **$999.95!**

Item # IN7502

- 14X zoom
- 2.5" LCD
- Auto flash
- 1024 x 768 resolution
- 3.5" floppy storage

SONY.

WHILE SUPPLIES LAST! POWER MAC G3/266MHZ

- 266MHz PowerPC G3 processor
- 64MB SDRAM (768MB max.)
- 4.0GB hard drive • 24X CD-ROM
- 56K modem • 2MB SGRAM
- 512K backside level 2 cache
- Built-in 10Base-T Ethernet
- Includes Microsoft Office 98*

Only **$1799!**

Item # CPU1264

See page 4 of 9 for details!

Monitors sold separately. *Retail packaging shown for promotional purposes only.

PRICE SLASHED $300! POWERBOOK G3/233MHZ

- 233MHz PowerPC G3 processor
- 32MB SDRAM (192MB max.)
- 2.0GB hard drive
- 20X CD-ROM drive • 56K modem
- 10Base-T Ethernet
- 12.1" active-matrix color display

Now only **$1999!** was ~~$2299~~

Item # CPU1249

While supplies last!

See page 5 of 9 for details!

PAGE 1 OF 9

1-800-434-3035 ★ www.warehouse.com/md

ORDER TOLL-FREE 24 HOURS A DAY, 7 DAYS A WEEK! CANADA ORDERS CALL: 1-800-603-5139

MacWAREHOUSE®

EXPRESS DELIVERY OVERNIGHT!

In-stock items, call by midnight (E).

Hi, I'm Michael. Call me for more great deals!

Authorized Catalog Reseller

MacWAREHOUSE

Look for this symbol and SAVE!

Get an Apple

Apple • Epson • Iomega • Hewlett-Packard • Umax • Brother • Belkin

Epson Stylus Color 740 Printer

Only $249.95!
PR14065

- 1440 x 720 dpi w/smaller ink drops
- 6ppm black; 5ppm color
- USB compatible

EPSON

iMac Add-on!

Iomega Zip® USB Value Pack

Only $269.95!
BND3035

Includes:
- Zip drive
- 10 color disks
- Carrying case
- Disk caddy
- Media wallet

iMac Add-on!

HP DeskJet 697c Color Printer

Only $219!
BN5686

HEWLETT PACKARD

- 5ppm black; 1.7ppm color
- 600 dpi black; 600 x 300 dpi color
- iMac G3 USB compatible only
- Manufacturer's 1-year warranty

iMac Add-on!

iMac USB Hubs

As low as $79.99!
DEH4075

entrega. technologies inc.

- Provides 4 additional USB ports for expanding your peripherals.
- iMac color case

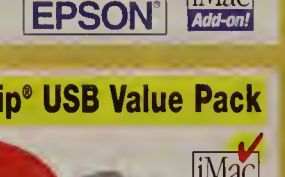
iMac Add-on!

DEH4075: 4-port USB iMac hub.....$79.99
DEH4074: 7-port USB iMac hub.....$129.99

Astra 1220u Duo Color Scanner

Only $129.95!*
IN7260

UMAX



- 600 x 1200 dpi resolution
- 36-bit color images

iMac Add-on!

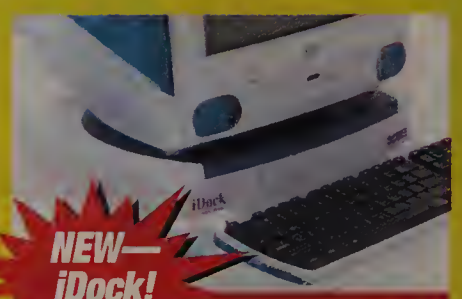
*Price after $20 manufacturer's mail-in rebate. Price before rebate is $149.95. Ask for coupon # AA1203. Offer expires 1/31/99.

NEW iMac/266MHz – available in 5 colors!

iMac 233MHz PRICE SLASHED!

As low as $999!

Ask for item # CPU1260.



NEW— iDock!
Adds Serial and Parallel ports to your iMac!

iMac 233MHz/4.0GB HD/original Bondi Blue
Ask for item # CPU1260 was ~~$1299~~..... Only $999

iMac 233MHz/4.0GB/original Bondi Blue with additional 64MB RAM (not installed)
Ask for item # CPU1261 ..... only $1168.95

iMac 233MHz/4.0GB/original Bondi Blue with additional 64MB RAM INSTALLED
Ask for item # CPU1262 ..... only $1198.90

NEW! iDock, from CompuCable, expands iMac's connectivity. iDock is a swivel base with an Integrated 3-port USB Hub plus 2 Apple Serial/Geo Ports and 1 Parallel Port. With iDock, iMac can be connected to native Mac serial devices and multi-platform parallel devices. iDock is molded in Bondi Blue to match iMac perfectly.

Ask for item # DEH4252..... $199.99*
*iDock will be available in February. Reserve yours now to ensure fastest delivery!

CompuCable Speakers for iMac
Ask for item # EX9774..... $34.99

iMac GAMES BUNDLE

Get 5 great gaming software titles FREE!* when you purchase an Apple iMac G3.

Item # AAA0715

Includes: You Don't Know Jack 2, Marathon, Solitaire Mania, Abuse and Video Casino

iMac Add-on!

*Retail packaging shown for promotional purposes only. Shipped in promotional packaging on CD-ROM. Games Bundle must appear on the same invoice as iMac. Offer good while supplies last.

MYST

Broderbund®

- Challenge your puzzle-solving skills in the Island world that is Myst!

FREE! with any purchase from MacWAREHOUSE

Item # AAA0742

iMac Add-on!

*$3.95 shipping and handling applies. Shipped in promotional packaging. Hurry! Offer good while supplies last.

PAGE 2 OF 9

EXTENDED KEYBOARD & MOUSE

Only $49.95!* w/iMac purchase

Save over $50!**

Ask for item # BND2908.

macally

- Keyboard features quiet soft touch w/tactile feedback Keyswitch control
- Mouse features an excellent feel, shape, and 275 dpi resolution

*Keyboard/mouse and iMac must appear on the same invoice.

iMac Add-on!

BROTHER HL-1040 LASER PRINTER

Only $379! NEW!

Ask for item # BN6035.

USB compatible

- Includes USB connectivity kit for the iMac
- Fast! Prints 10ppm
- 600 x 600 dpi resolution

brother

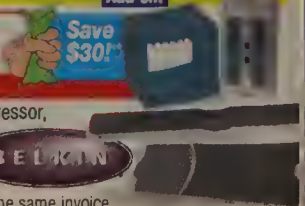
iMac Add-on!

iMAC ACCESSORY KIT

Only $49.99!* w/iMac purchase

Save $30!**

Ask for item # DSP1642.



- **Includes:** SurgeMaster surge suppressor, iMac CD holder (holds 10 CDs), ErgoPad Premiere wrist rest, ErgoPad Premiere mousepad.

BELKIN

*Accessory Kit and iMac must appear on the same invoice.

iMac Add-on!

MacWAREHOUSE

iMac G3 as low as $999!

See below for details.

CALL FOR A FREE FULL-COLOR CATALOG!

Grolier • Imation • Farallon • DataViz • MetaCreations • Agfa

- 266MHz PowerPC G3 Processor
- Built-in 15" Color Monitor (viewable size: 13.8")
- 32MB (expandable to 256) • 6.0GB HD
- 512K Backside Level 2 Cache • 6MB of Video RAM
- Built-in 24X CD-ROM Drive
- Built-in 56Kbps Modem • Mac OS 8.5
- Built-in 10/100Base-T Ethernet

Blueberry: item # CPU1292! *Lime:* item # CPU1294!
Tangerine: item # CPU1296! *Grape:* item # CPU1293!
Strawberry: item # CPU1295!

Only $1199

See the complete line of G3s at
www.apple.warehouse.com

Visit us at:
buymacgames.warehouse.com
for our full selection of great games for the Mac!

iMac SuperDisk USB Drive

Only $149.95! DRI2793

- 120MB capacity
- USB interface for easy plug and play, hot-swappable storage
- Reads and writes 3.5" diskettes

iMac Add-on!

iMac LS-120MB SuperDisks (5-pack), **only $64.99. Ask for item # ME7927.**

Farallon EtherMac iMac iPrint Adapter

Only $109.99! DEP1734

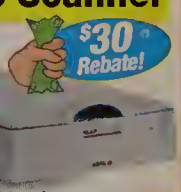
- Connects your iMac to LocalTalk printers and other Macintosh computers
- Easy plug-and play installation

iMac Add-on!

Agfa SnapScan 1212U Scanner

As low as $99.95!* IN7534

$30 Rebate!



- 36-bit color
- 600 x 1200 dpi
- Scans up to 8.5" x 11.7" • USB interface

*Price after $30 manufacturer's mail-In rebate. Price before rebate is $129.95. Ask for coupon # AAA0761. Offer expires 3/31/99.

iMac Add-on!

Stuffit Deluxe 5.0

Only $29.95!* w/iMac purchase AAP0580

Save $50!**

- Offers 20% better compression than previous versions

*Apple iMac G3 and Stuffit Deluxe must appear on the same invoice. Price for Stuffit Deluxe without iMac purchase is $79.95. Ask for item # AAP0580. While supplies last.

iMac Add-on!

iMac FAMILY COLLECTION

4 great learning titles the whole family can enjoy for only $49.95!*

when you purchase an Apple iMac G3.

Item # AAP0562

Includes: Grolier Encyclopedia 98, Mavis Beacon Teaches Typing 5.0, PrintMaster Gold Suite, and Math Blaster Jr.

Save over $105!**

iMac Add-on!

Retail packaging shown for promotional purposes only. Shipped in promotional packaging on CD-ROM. Family Collection must appear on the same invoice as iMac. Offer good while supplies last.

iMac GAMES BUNDLE

Get 4 great gaming software titles to enjoy for only $39.95!*

when you purchase an Apple iMac G3.

Item # AAP0581

Includes: 3D Ultra Pinball-Lost Continent, Civilization II, Myth, and F/A-18 Hornet 3.0

Save over $155!**

iMac Add-on!

*Retail packaging shown for promotional purposes only. Shipped in promotional packaging on CD-ROM. Games Bundle must appear on the same invoice as iMac. Offer good while supplies last.

DataViz MacLinkPlus Deluxe v.10.0

Only $59.95!* w/iMac purchase AAP0545

Save $40!**

- Open, use, and convert files for the latest applications.

*Apple iMac G3 and MacLinkPlus Deluxe must appear on the same invoice. Price for MacLinkPlus Deluxe without iMac purchase is $99.95. Ask for item # AAP0545. Offer expires 3/31/99.

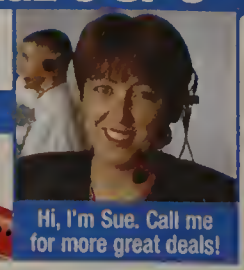
iMac Add-on!

1-800-434-3035 ★ www.warehouse.com/md

ORDER TOLL-FREE 24 HOURS A DAY, 7 DAYS A WEEK! CANADA ORDERS CALL: 1-800-603-5139

MacWAREHOUSE

EXPRESS DELIVERY OVERNIGHT!
In-stock items, call by midnight (E).



Authorized Catalog Reseller

MacWAREHOUSE

Screamin'-Fast Apple

Microsoft • Apple • Global Village • Iomega • Olympus

Global Village 56K V.90 Modem

Only $139.99! DMD3467

- Compliant with both V.90 and K56Flex technology
- Flash ROM upgradable

Iomega 100MB Zip Drive

Only $119.95! DR9279

ZipPlus Refurbished: Works with both Parallel and SCSI Ports.
Item # RDRI2274. . . . . ONLY $109.95!*
*Refurbished by the mfr to meet original factory specifications.

Iomega 100MB Zip Disks

As low as $9.99! each, in 10-pack

Gray 100MB Zip Disk 10-pack
Item # ME7756 . . . . . ONLY $99.95
Multi-color 100MB Zip Disk 10-pack
Item # BN5265 . . . . . ONLY $99.95

Olympus D-620L Camera

Only $1199.95! IN7515

- 1280 x 1024 ppi resolution
- 3X zoom with TTL SLR viewfinder
- 8MB SmartMedia included

OLYMPUS

Accessories Kit: Includes leather camera case, 8MB SmartMedia Card, rechargeable batteries and recharger, AC adapter and software.
Item # AC23606. . . . . ONLY $199.95!

16MB SmartMedia Cards

Only $79.95! MY10247

- Digital film for digital cameras
- Compatible with most new digital cameras

PAGE 4 OF 9

NEW! Apple Power Mac G3s

Design, Features, and Speed You've Never Seen Before!

As low as $1599!

ALL NEW POWER MAC G3s INCLUDE:

- 100MHz System BUS • One ADB port
- Built-in 10/100Base-T Ethernet connector
- Built-in ATI Rage 128 graphics card with 16MB of SDRAM graphics memory
- NEW! Two ultra-fast FireWire ports — much faster than SCSI ports, and together they handle up to 63 devices
- Two USB ports — handle up to 127 USB peripherals

300MHz PowerPC G3/512K cache/64MB SDRAM/6.0GB hard drive/24x CD-ROM drive
CPU1282 . . . LeaseIt! for $64/mo.§ $1599

See the complete line of G3s at
www.apple.warehouse.com

Monitors sold separately.

NEW! POWER MAC G3/350MHZ MINITOWER

- 350MHz PowerPC G3 processor
- 64MB SDRAM (1.0GB max.)
- 6.0GB hard drive
- DVD-ROM drive (5X DVD/32X CD)
- 1MB backside Level 2 cache

Only $1999!
Item # CPU1283
LeaseIt! for $80/mo.§

NEW! POWER MAC G3/350MHZ MINITOWER

- 350MHz PowerPC G3 processor
- 128MB SDRAM (1.0GB max.)
- 12.0GB hard drive • 24X CD-ROM
- Zip drive • 1MB backside Level 2 cache

Only $2499!
Item # CPU1284
LeaseIt! for $100/mo.§

NEW! POWER MAC G3/400MHZ MINITOWER

- 400MHz PowerPC G3 processor
- 128MB SDRAM (1.0GB max.)
- 9.0GB Ultra 2 SCSI hard drive
- 24X CD-ROM drive
- 1MB backside Level 2 cache

Only $2999!
Item # CPU1285
LeaseIt! for $120/mo.§

NEW! POWER MAC G3 SERVERS

- 350MHz PowerPC G3 processor
- 128MB SDRAM (1.0GB max.)
- 9.0GB Ultra 2 SCSI hard drive
- 24X CD-ROM • 1MB backside Level 2 cache • AppleShare 6.1

Only $3299!
Item # CPU1286
LeaseIt! for $132/mo.§

400MHz PowerPC G3 Server/1MB L2 cache/256MB SDRAM/ two 9.0GB Ultra 2 SCSI hard drives/24x CD-ROM **CPU1287 . . . LeaseIt! for $200/mo.§ $4999**

- Our sales staff is ready to take your order 24 hours a day, 7 days a week. We accept the following major credit cards: Visa, MasterCard, Discover Card/NOVUS, AmEx. Your credit card will not be charged until each item is shipped (no surcharge). CT, IL, NJ, OH, VA and WA residents add applicable sales tax.
- Overnight delivery just $9.95 per order up to 5 pounds. For all orders over 5 pounds, shipping is $9.95 plus an additional $1.50 per pound or fraction thereof. (Example: shipping for a 6 pound order is $11.45). Please add an additional $3.00 for all orders $50.00 and under.
- Orders for "in-stock" items placed on weekdays up until 12:00 midnight (E), 10:00 pm (E) for Internet orders, ship same day for overnight delivery (barring system failure, etc.). We anticipate being able to ship "out-of-stock" items within 30 days.
- All items we sell come with the MacWAREHOUSE 30-Day Guarantee Against Defects. Call our Customer Service Department at 1-800-925-6227 for a Return Merchandise Authorization (RMA) number within 30 days of the original invoice date. All returns are subject to the following: 1. All products must be returned in original packaging 2. Shipping and handling charges are not refundable. 3. Software and consumables are not refundable unless returned unopened in original packaging with documentation. 4. Custom orders and cables are not refundable. 5. Products designated as "all sales final" are not refundable. If your Apple hardware is defective you must call Apple Computer, Inc. directly at 1-800-SOS-APPL (1-800-767-2775). Apple Computer, Inc. will repair or replace products at its sole discretion. If you do return Apple hardware to MacWAREHOUSE, you will be assessed a 15% restocking fee which will be charged to your account.

Copyright© 1999 Micro Warehouse, Inc. MacWAREHOUSE® is a division of Micro Warehouse, Inc. Item availability and price subject to change without notice. We regret that we cannot be responsible for typographical errors. All prices shown in U.S. dollars. Since we are not the manufacturer or publisher of any of the products we sell, Micro Warehouse makes no representations or warranties of any kind and assumes no liability concerning whether any of the products or services sold by us are Year 2000 Compliant. Year 2000 representations and warranties may be supplied directly to our customers by the manufacturers or publishers of certain products.

We accept these major credit cards.

§ Leases are only available to business customers with approved credit on product orders where at least one product totals $750, or more. Lease payments are based on a 36-month, Fair Market Value. Call today to see how you can qualify. Lease terms are subject to change.

MacWAREHOUSE

Power Mac G3s as low as $1599!

Power Mac G3/300MHz Minitower. See left page for details.

Apple • Global Village • VST Technologies

Apple PowerBook G3

Price Slashed!

Now only $1999!

WAS ~~$2299~~

ASK FOR ITEM # CPU1249.

- 233MHz PowerPC G3 processor
- 32MB SDRAM
- 2.0GB hard drive
- 20X CD-ROM drive
- 56K modem
- 512K backside level 2 cache
- 10Base-T Ethernet
- 12.1" active-matrix color display

While supplies last!

Floppy drive sold separately. Ask for item # DRI2661.

APPLE POWERBOOK G3/233MHZ

- 233MHz PowerPC G3 processor
- 32MB SDRAM • 2.0GB hard drive
- 20X CD-ROM drive • 56K modem
- 10Base-T Ethernet
- 512K backside level 2 cache
- 14.1" active-matrix color display

Price Slashed! Now only $2499!

was ~~$2799~~

Item # CPU1238

Floppy drive sold separately; item # DRI2661.

APPLE POWERBOOK G3/266MHZ

- 266MHz PowerPC G3 processor
- 64MB SDRAM • 4.0GB hard drive
- 20X CD-ROM drive • 56K modem
- 10Base-T Ethernet
- 1MB backside level 2 cache
- 14.1" active-matrix color display

Price Slashed! Now only $2999!

was ~~$3499~~

Item # CPU1239

Floppy drive sold separately; item # DRI2661.

APPLE POWERBOOK G3/300MHZ

- 300MHz PowerPC G3 processor
- 64MB SDRAM • 8.0GB hard drive
- 20X CD-ROM drive • 56K modem
- 10Base-T Ethernet
- 1MB backside level 2 cache
- 14.1" active-matrix color display

Price Slashed! Now only $3999!

was ~~$4499~~

Item # CPU1259

Floppy drive sold separately; item # DRI2661.

APPLE POWERBOOK G3/300MHZ

- 300MHz PowerPC G3 processor
- 64MB SDRAM • 8.0GB hard drive
- DVD-ROM drive • 56K modem
- 10Base-T Ethernet
- 1MB backside level 2 cache
- 14.1" active-matrix color display

Price Slashed! Now only $4399!

was ~~$4999~~

Item # CPU1240

Floppy drive sold separately; item # DRI2661.

PowerBook G3 Accessories

NEW! VST Zip 100 Drive

Internal as low as $219.95!* AAP0552

For PowerBook G3 Series

- Bootable (Mac OS 8 boot disk provided)

*With the purchase of a six pack of Iomega Zip disks. Must appear on the same invoice.

Iomega Zip disks; 6-pack, item # MED0394 ..... ONLY $79.95

Apple PowerBook G3 Floppy Drive

Only $109.95! DRI2661

NEW! PowerBook G3 Battery

Only $219.95! ACC3307

- Works with 1998 model G3 PowerBooks
- Lithium-Ion

56K V.90 FaxModem PC Card

Only $159.99! DMD3824

- K56 Flex and V.90 technology cuts Web page downloading time almost in half!

Global Village Communication

PowerBook Memory Upgrades

Call For Our Latest Low Prices!

- Installation available
- SDRAM

PAGE 5 OF 9

1-800-434-3035 ★ www.warehouse.com/md

ORDER TOLL-FREE 24 HOURS A DAY, 7 DAYS A WEEK! CANADA ORDERS CALL: 1-800-603-5139

MacWAREHOUSE

EXPRESS DELIVERY OVERNIGHT!

In-stock items, call by midnight (E).

MacWAREHOUSE

Authorized Catalog Reseller

Wow! Order Mac OS 8.5

Apple • 3Com • Hitachi • Global Village • Sony • Macromedia • Microtek

NEW VERSION! Macromedia Dreamweaver 2.0

Upgrade only $129.95! UPG0953

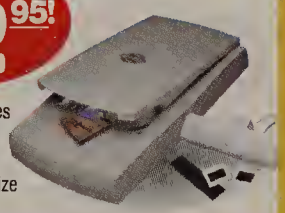
- Make complex site-wide changes quickly with integrated site map, global search and replace, and automatic link management

Serial number required at time of purchase. macromedia

Microtek ScanMaker X6EL

As low as $249.95! IN7420

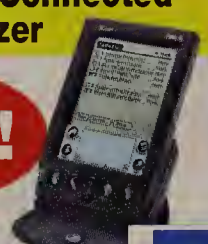
MICROTEK



- 36-bit color images
- 600 x 1200 dpi optical resolution
- 8.5" x 14" legal size
- SCSI interface

Palm III Connected Organizer

Only $329! BN5506



- Includes MacPac translation software
- Flash upgradable memory
- Easy-to-read screen

3Com

8MB Compact Flash Storage Cards

Only $39.95! MY7648

- 8MB compact flash
- Digital film for brand name digital cameras including:

Nikon Kodak Konica

Global Village 56K V.90 Modem

As low as $99.99* when purchased at the same time as an Apple Power Mac G3 system! AAP0491

Save $40!**

*Price without Power Mac G3 purchase is $139.99. Ask for item DMD3467. **Savings based on regular MacWAREHOUSE pricing as of this magazine printing.

PAGE 6 OF 9

Apple iMac G3

Only $899!* Ask for item # RCPU1260.

Authorized Catalog Reseller

Equipped with the new PowerPC G3! Furiously-Fast Processor

- 233MHz PowerPC G3 processor
- 32MB RAM (256MB max.)
- 4.0GB hard drive
- 24X CD-ROM drive
- 56K modem • 15" color monitor

Factory Reconditioned

Apple ColorSync 850 20" monitor Only $1499! Ask for item # MON0657.

Monitors sold separately.

APPLE POWER MAC G3 DESKTOP only $1449!* Ask for item # RCPU1204.

- 266MHz PowerPC G3 processor
- 32MB RAM (768MB max.)
- 4.0GB hard drive
- 24X CD-ROM drive
- 10Base-T Ethernet

Factory Reconditioned

Equipped with the new PowerPC G3! Furiously-Fast Processor

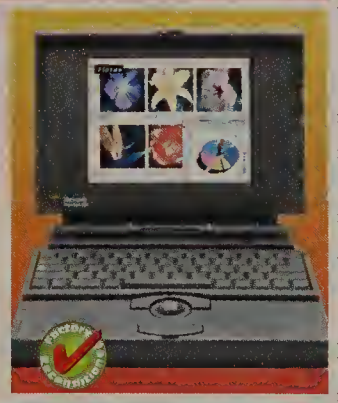
*Reconditioned system. Reconditioned computers may not include original application software. 90 days parts and labor warranty. All sales final. While supplies last.

Many other reconditioned Power Mac G3 models available. Call for details.

APPLE POWERBOOK 180C

- 33MHz 68030 processor • 14MB RAM
- 160MB HD • 14.4Kbps modem
- 8.4" active-matrix color display

Only $399!* Item # RCPU1273



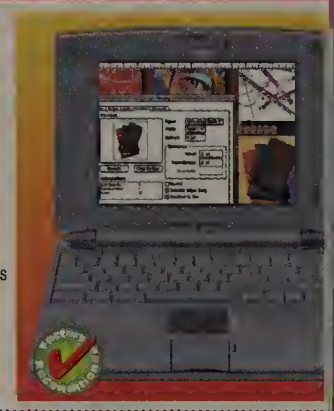
RCPU1195: PowerBook 180: 33MHz 68030 processor, 8MB RAM, 120MB HD, 14.4Kbps modem, 10" grayscale active-matrix display, ClarisWorks 3.0: .....only $499*

*Reconditioned system. Reconditioned computers may not include original application software. 90 days parts and labor warranty. All sales final. While supplies last.

APPLE POWERBOOK 520C

- 25MHz 68LC040 processor • 20MB RAM
- 240MB HD • 19.2Kbps modem
- 9.5" passive-matrix color display
- ClarisWorks 3.0

Only $699!* Item # RCPU1107



RCPU1196: PowerBook 540c: 33MHz 68LC040 processor, 20MB RAM, 240MB HD, 19.2Kbps modem, 9.5" active-matrix color display, ClarisWorks 3.0: .....only $799*

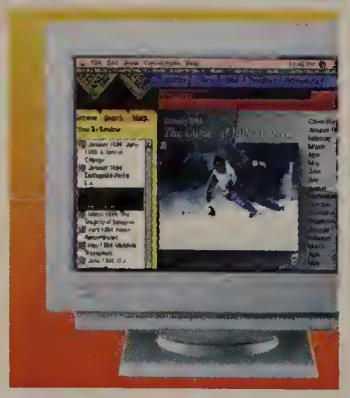
*Reconditioned system. Reconditioned computers may not include original application software. 90 days parts and labor warranty. All sales final. While supplies last.

HITACHI 17" MONITOR

HITACHI

- 17" monitor (15.9" viewable)
- Resolutions up to 1152 x 870 @ 75Hz
- .28mm dot pitch
- Manufacturer's 3-year warranty

Only $399.95! Item # MON0548



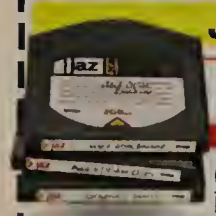
SONY 420GS 19" MONITOR

SONY

- 19" monitor (18" viewable)
- .25mm aperture grille
- 1600 x 1200 resolution @ 75Hz

Only $639.95! Item # MON0762

Jaz 2.0GB Cartridges



As low as $99.95! each, in 5+ quantity

Ask for item # MED0508.

iomega

Quantity:	1-2	3-4	5+
Price:	$124.95 ea.	$109.95 ea.	$99.95 ea.

APC 500VA UPS

Only $149.99! Ask for item # DUP2097.

APC

- Manufacturer's 2-year warranty
- Full-time surge protection and instantaneous battery back-up to protect your equipment against brownouts, overvoltages, and blackouts.

Power Mac G3 Memory Upgrade

Only $99.95! Ask for item # CHP0541.

- SDRAM DIMM
- Call for full selection

MacWAREHOUSE

& Get FREE Software!**

**$3.95 shipping and handling applies. Shipped in promotional packaging.

Nikon • Epson • Symantec • UMAX • Microsoft • Sony • Fuji • Wacom

Mac OS 8.5

As low as $89.95!* Ask for item # SYS0292.

- ✓ **Sherlock Find!** Search the Internet without launching your browser!
- ✓ **Find by Content!** Conduct thorough file searches with keywords and phrases!
- ✓ **PowerPC-native AppleScript!** Runs up to 3 times faster than previous versions!
- ✓ **Faster Network Copy!** Downloading internet images will be faster than ever before!

Sherlock

Authorized Catalog Reseller

FREE!** A $135 VALUE!†

You get all these software titles **FREE**** with your Mac OS 8.5 purchase!

- Cyber Patrol • Solitaire Mania • Art Mania 10,000
- Compton's Interactive Encyclopedia • Virex

Ask for item # AAA0735

**$3.95 shipping and handling applies. Shipped in promotional packaging.
†Value based on products sold separately as of this magazine printing.

*Price after MacWAREHOUSE $10 mail-in rebate. Price before rebate is $99.95. Offer expires 2/15/99. Limit one rebate per customer (or total of 5 rebates per customer site). Rebate coupon and full details available at appleos85.warehouse.com or call customer service at 1-800-390-0706.

Epson Stylus Photo 700 Printer

Only $249.95! PR13706

- 1440 x 720 dpi, 6-color technology
- Print up to 8.5" x 44" panoramas

Epson Stylus Photo EX: Enlargements up to 11.7" x 17", only $499.95. Ask for item # PR13705.

NEW! Sony Digital Cameras

As low as $499.95! IN7214

Sony FD51:
- High speed 2x disk drive

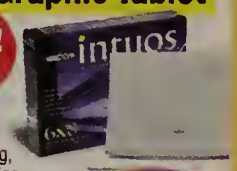
Sony FD81 Digital Camera (shown).
- 1024 x 768 ppi • 10X zoom lens • Whole disk copy
- E-mail mode • 2.5" color LCD w/Solar Window™ Panel

Only $799.95. Ask for item # IN7364.

SONY

WACOM Intuos 6x8 Graphic Tablet

Only $329.95! INP1584



- Intelligent graphic tablet system for drawing, painting, and image editing.
- Intuos Pen with 1,024 levels of pressure sensitivity, built-in erase and programmable DuoSwitch

Designed for 2-D, 3-D and video applications!

NEW! NORTON UTILITIES 4.0

- HFS Plus compatibility
- Power PX native
- Enhanced SCSI/IDE support

Upgrade only $49.95!* after rebate

Item # UTI1383

*Price after publisher's $50 mail-in upgrade rebate. Price before rebate is $99.95. Proof of ownership of previous version of Norton Utilities for Mac required. Limit one per customer. Rebate expires 30 days after purchase date. Copy of invoice required.

MICROSOFT OFFICE 98

Microsoft®

- Includes: Word 98, PowerPoint 98, Excel 98 and Outlook Express

Upgrade only $259.95!

Item # UPG0778

BUS1150: Microsoft Office 98 Full Version ..... **only $449.95**

FUJI CD-Rewritables

As low as $11.66!* each ME7766

- 650MB
- 74 minute
- Jewel case

$10 rebate!

*Price each, after $10 mfr's mail-in rebate on a 3-pack. Price for 3-pack after rebate is $34.99. Price before rebate is $44.99. Offer expires 30 days from purchase.

HP PHOTOSMART C30 DIGITAL CAMERA

HEWLETT PACKARD

- 1152 x 872 resolution
- 2x digital zoom
- 1.8" color LCD
- 4MB compact flash

Only $399.95!

Item # IN7521

WAREHOUSE.COM

Get a FREE gift* when you order online.

Every time you order from our full line of Mac products on the Web, you can get one of these FREE*: MYST, Vertigo 3D Dizzy, Newpoint Surge SAFE Protector, 3,000 Mega Clipart Pack & more!

*$3.95 shipping and handling applies. Limit one per customer per order. Shipped in promotional packaging. While supplies last.

UMAX 1200S 30-bit Scanner

Now only $149.95! was $179.95 IN6249

UMAX

- 600 x 1200 dpi resolution
- 9600 x 9600 dpi enhanced
- Scans legal size 8.5" x 14"

New Low Price!

1-800-434-3035 ★ www.warehouse.com/md

ORDER TOLL-FREE 24 HOURS A DAY, 7 DAYS A WEEK! CANADA ORDERS CALL: 1-800-603-5139

MacWAREHOUSE®

EXPRESS DELIVERY OVERNIGHT!

In-stock items, call by midnight (E).

Authorized Catalog Reseller

MacWAREHOUSE

Upgrade to Adobe

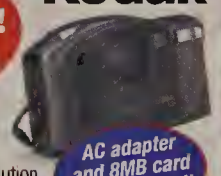
Adobe • Kodak • Asante • Epson • Mactell • Fuji • US Robotics • Amazon

DC210 Plus Digital Camera

Kodak

Now only $499.95! IN7315

was $699.85

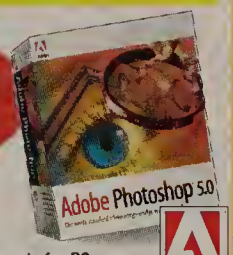


- 2X zoom lens
- 1152 x 864 max. resolution
- 1.8" color LCD display

DC210 Mac Connection Kit, only $24.95! Item # ACC3243

Adobe Photoshop 5.0

Upgrade only $189.95! UPG0836



- Quickly undo or redo seven steps so you're free to experiment

Adobe Photoshop 5.0 upgrade for PC; Ask for item # UP4060.

Asante Fast 10/100 PCI Adapter

Only $49.99! DEC3343

- 10/100 PCI adapter (Mac/PC)
- Auto negotiation

10/100 PCI Adapter 5 pack (Mac/PC), only $239.99! Ask for item # DEC3344.

ASANTÉ

Extended On-Site Service*

Six great reasons to get complete system coverage:

1. **Toll-Free Technical Help** available 24 hours a day!
2. **Fast On-Site Support** with next business day response in most areas for most items!
3. **Free Replacement** if unit cannot be repaired!
4. **No Deductible** — 100% coverage on parts and labor!
5. **24- and 48-Month Coverage** available from date of purchase!
6. **Fully Insured** — underwritten by A.M. Best!

Service you can depend on! Support and repairs are provided by DFS, which has been providing superior, price-competitive programs for over 20 years!

Consult the chart below to see which warranty best fits your needs:

Cost of Computer and/or Peripherals	Warranty Price (48 months)	Ask for item #
$701 - $1,200	$99	WAR0001
$1,201 - $2,000	$149	WAR0002
$2,001 - $3,000	$189	WAR0003
Call your Account Manager for details on orders over $3,000.		

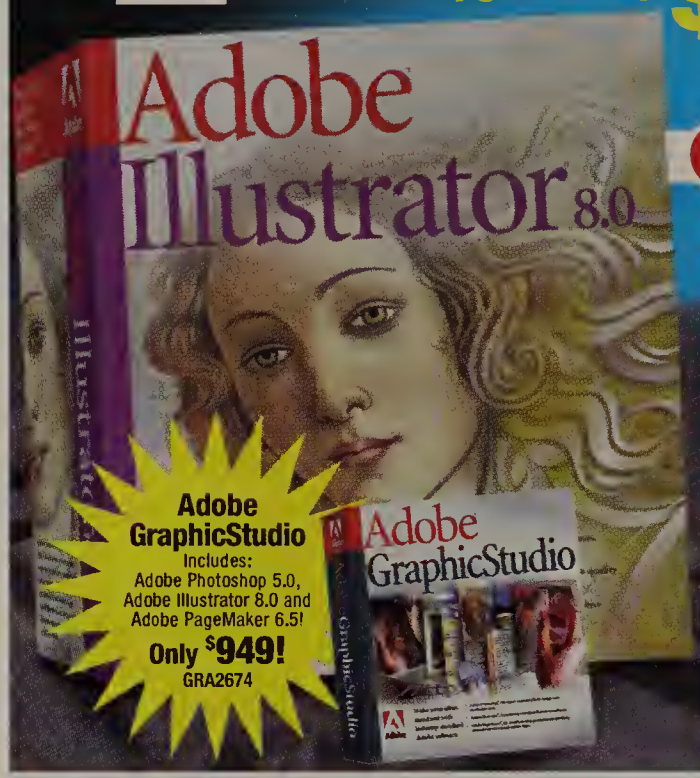
Call your sales representative today!

*Note: This promotion is not a service agreement, but an outline of coverage available through DFS. Please call Micro Warehouse, Inc. for information and read the complete Service Agreement from DFS for exact coverages, terms, and conditions. On-site service begins after manufacturer's warranty expires. Plan not available on international or Florida orders. All Returns not covered under the standard MicroWAREHOUSE RETURN POLICY are subject to a $25 Return Fee assessment.

PAGE 8 OF 9

Adobe Illustrator 8.0

Upgrade only $119.95! Ask for item # UPG0887.



8 Great Reasons to Upgrade!

1. **Art Brush:** Save objects as Art brushes and apply to any path.
2. **Photo Crosshatch Filter:** Turn scanned photos into textured or crosshatched sketches.
3. **New Pencil Tool:** Tweak shapes easily and automatically.
4. **Smooth and Erase Tools:** Quickly smooth and erase paths.
5. **Actions Palette:** Record and play back a series of steps to automate commonly illustrated tasks.
6. **Smart Guides:** Move, align, transform with exactness.
7. **Live Blends:** Blends are now live so you can edit them freely.
8. **Free Transform Tool:** Consolidate scaling, skewing, rotating, and functionality in one tool.

Full version, only $359.95! Item # GRA2649.

FREE!* Extensis Collect Pro 2.0 & Hot Door Transparency when you order Adobe Illustrator 8.0. Item # AAA0718.

*$3.95 shipping and handling applies. While supplies last.
**Value based on individual products sold separately as of this magazine printing.

A $149 VALUE!**

EPSON STYLUS COLOR 1520

EPSON

- Prints 6ppm black/5ppm color
- Handles media up to 17" x 22"
- Mac/PC compatible

Only $499.95! Item # PR12430

MACTELL GRAPHICS ACCELERATOR

mactell

- 128-bit graphics processor
- 8MB VRAM • 250MHz PCI

Vision3D Pro II only $619.95! Item # EX9346

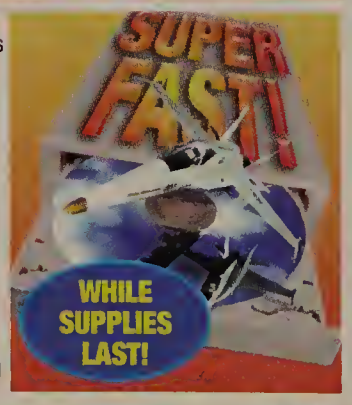
FREE F/A-18 HORNET 3.0*

with purchase of any of these three CD-ROM drives from MacWAREHOUSE Ask for item # AAA0520.

16X external CD-ROM drive only $129.95! Item # DRI2663

24X External, item # DRI2553: $149.95
32X External, item # DRI2552: $179.95

*$3.95 shipping and handling applies. Shipped in promotional packaging on CD-ROM.



QUARKXPRESS 4.0

QUARK

- Use style sheets for individual words, not just paragraphs!
- Zoom up to 800% magnification!
- Draw curved lines with Bézier tool and place text along curved lines!

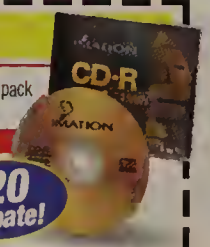
Only $699.95! Item # DTP0557

CD-Recordables

IMATION

- 74 min.
- 650MB
- Jewel cases included

As low as 59¢* each, in 10-pack after rebate. Ask for item # BN5936.



$20 Rebate!

*Price each, after manufacturer's $20 mail-in rebate for 10-pack. 10-pack price before rebate is $25.99. Limit 3 per address. Offer expires 6/30/99.

USR V.90 56K FaxModem

FREE Software!*

Only $147.99! Ask for item # DMD3448

*$3.95 shipping and handling applies. Includes Earthlink Total Access with waived set-up fee and 15 free days of access, Netscape Communicator, & much more. **Ask for item # AAA0639.** Limited time offer! Shipped in promotional packaging.

3Com U.S. Robotics

Amazon Inkjet Supplies

As low as $14.99!* each, in 2-pack. Ask for item # BN5560.

*Black ink cartridge for the Epson Stylus Color 850. Price for 2-pack is $29.99.

FREE Amazon Specialty Paper Pack** with the purchase of 2 inkjet cartridges.

Color Ink Cartridge for Epson Stylus Color 850. Ask for item # BN5561, 2-pack only $35.99.

**3.95 shipping and handling applies. Shipped in promotional packaging. While supplies last.

MacWAREHOUSE

Illustrator 8.0 for only $119.95!

See left page for details.

Hewlett-Packard • Optiquest • Iomega • Caere • Olympus • Farallon

HP LaserJet Printers

HP LASERJET 8000N
Only $2629.95! Ask for item # PR13724.
- Prints 24ppm • 1200 dpi maximum resolution
- 133MHz RISC processor

HP LASERJET 8000 SERIES BLACK TONER CARTRIDGE
As low as $179.95 each
Item # 63223.
Call for details.

NEW! HP LASERJET 8100N
- Prints 32ppm • 1200 dpi

Ask for item # PR14315 ..... $2999.95

NEW! HP COLOR LASERJET 8500N
- Prints 24ppm/6ppm color • 600 dpi

Ask for item # PR14213 ..... $6779

HP LaserJet 4000N
$1399!
Item # PR12975

- Prints 17ppm
- 1200 dpi maximum resolution
- 100MHz RISC processor
- Ethernet 10BaseT/10Base2 + Localtalk

HEWLETT PACKARD
Expanding Possibilities

HP LASERJET 6MP
Only $929.95!
Ask for item # INP0975.
- Prints 8ppm
- 600 x 600 dpi maximum resolution
- Localtalk port • Adobe PostScript level 2

HEWLETT PACKARD
Expanding Possibilities

HP LASERJET 5000N (not shown)
- Prints 16ppm • 1200 dpi • Prints 3 x 5 thru 11 x 17

Ask for item # PR13443 ..... $2049

OPTIQUEST V73 17" MONITOR

Optiquest
OPTIMIZE YOUR IMAGE

- 17" (16" viewable) screen
- .26mm dot pitch
- 1152 x 870 resolution @ 75Hz

Only $369.95!
Item # MON0725

IOMEGA JAZ 1.0GB CARTRIDGES

iomega

As low as $89.95! ea. in 5+ quantity
Item # MED0177

Quantity	1-2	3-4	5+
Price per disk	$99.95 each	$94.95 each	$89.95 each

OMNIPAGE PRO 8.0 UPGRADE

caere

Optical character recognition (OCR) software enables you to quickly and easily convert scanned pages into computer editable documents.

Only $99.95!
Item # UPG0781

www.webauction.com

Many bids $1 starting at

on Mac computers and lots of other great products.

Join the action at
WEBAuction.com
AUCTION WAREHOUSE

Products shown not necessarily being auctioned currently.

Broderbund MYST

FREE!* w/any purchase from MacWAREHOUSE AAA0742

- Challenge your puzzle-solving skills in the Island world that is Myst!

*$3.95 shipping and handling applies. Shipped in promotional packaging. Hurry! Offer good while supplies last.
**Value based on MacWAREHOUSE price as of this magazine printing.

USB to Parallel Printer Converter

Only $49.99! DAD1565

- Connects your computer to any parallel printer through your USB port

entrega.

74 Minute CD-Recordables

As low as $1.59! each, in 30+ quantities ME7553

- New low price
- Branded single w/Jewel Cases
- 650MB capacity

Kodak digital science

NEW! Olympus D-400Z

Only $799.95! IN7514

- 1280 x 960 ppi resolution
- 3X optical lens
- 8MB Smartmedia card
- Point and shoot ease-of-use

OLYMPUS

SupraExpress V.90 Modem

Only $99.99!* after rebate DMD3503

- Supports 56K ITU standard V.90 & K56flex technology

*Price after mfr's $20 mail-in rebate. Price before rebate is $119.99. Coupon in box. Offer expires 3/31/99.

PAGE 9 OF 9

1-800-434-3035 ★ www.warehouse.com/md

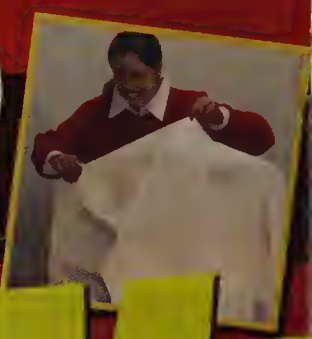
ORDER TOLL-FREE 24 HOURS A DAY, 7 DAYS A WEEK! CANADA ORDERS CALL: 1-800-603-5139

MacWAREHOUSE

EXPRESS DELIVERY OVERNIGHT!
In-stock items, call by midnight (E).

Choose 150 at www.macworld.com/getinfo

what's new from MacWorld Expo?



NEW Power Ma

Bring Home a Power Mac G3!

If you are looking for the best combination of price, performance and flexibility, this is the system for you. It comes complete with Microsoft Office 98 which includes Word 98, Excel 98, Outlook Express and Internet Explorer—a highly integrated set of productivity applications that are easier to use than ever before!

Processor and Memory
- 266MHz PowerPC G3
- 512K Backside Level 2 cache
- 66MHz system bus
- Integrated floating point unit and 64K on-chip Level 1 cache (32K data/32K instruction)
- 64MB SDRAM— 3 DIMM Slots up to 768MB
- 64-bit memory bus

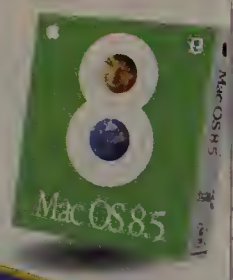
Storage
- 4GB IDE hard drive
- 24X CD-ROM drive
- Internal 1.44MB Floppy disk drive

Expansion Options
- Three PCI expansion slots compatible with PCI 2.1 compliant cards
- One or two 3.5" SCSI expansion bays

Networking and Connectivity
- 56K Modem
- Two high-speed DMA serial ports
- Internal/External SCSI bus
- Apple Desktop Bus (ADB) port

Graphics, Video & Sound
- 2MB SGRAM (expandable to 6MB max.)
- Built-in 64-bit graphics and multimedia accelerator
- 16-bit stereo quality audio I/O

Software
- Mac OS 8.5 & Microsoft Office 98



Add these Items to Your Order!

FREE! with any purchase!

Shipped in promotional packaging.
$2.99 shipping & handling each for YDKJ Movies & Carmen Sandiego?
$3.99 shipping & handling for Compton's Interactive Encyclopedia.

FREE!
Sidewinder Pro 3D Joystick w/any software purchase over $100

Ask for #39120 $9.99 S&H applies. Shipped in promotional packaging. MacMall special discount price $29.99 #39119

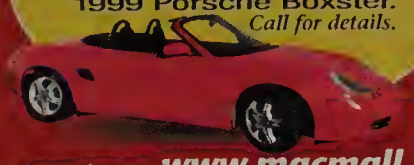
Call for Price!
#40821
Check out our Web site for the latest computer deals!
www.macmall.com

Order Any Time. Open 24 Hours. 1-800-217-9492
Order Today by 10pm EST—Get it Tomorrow by 10:30am.

Call for details or go to macmall.com/macnews

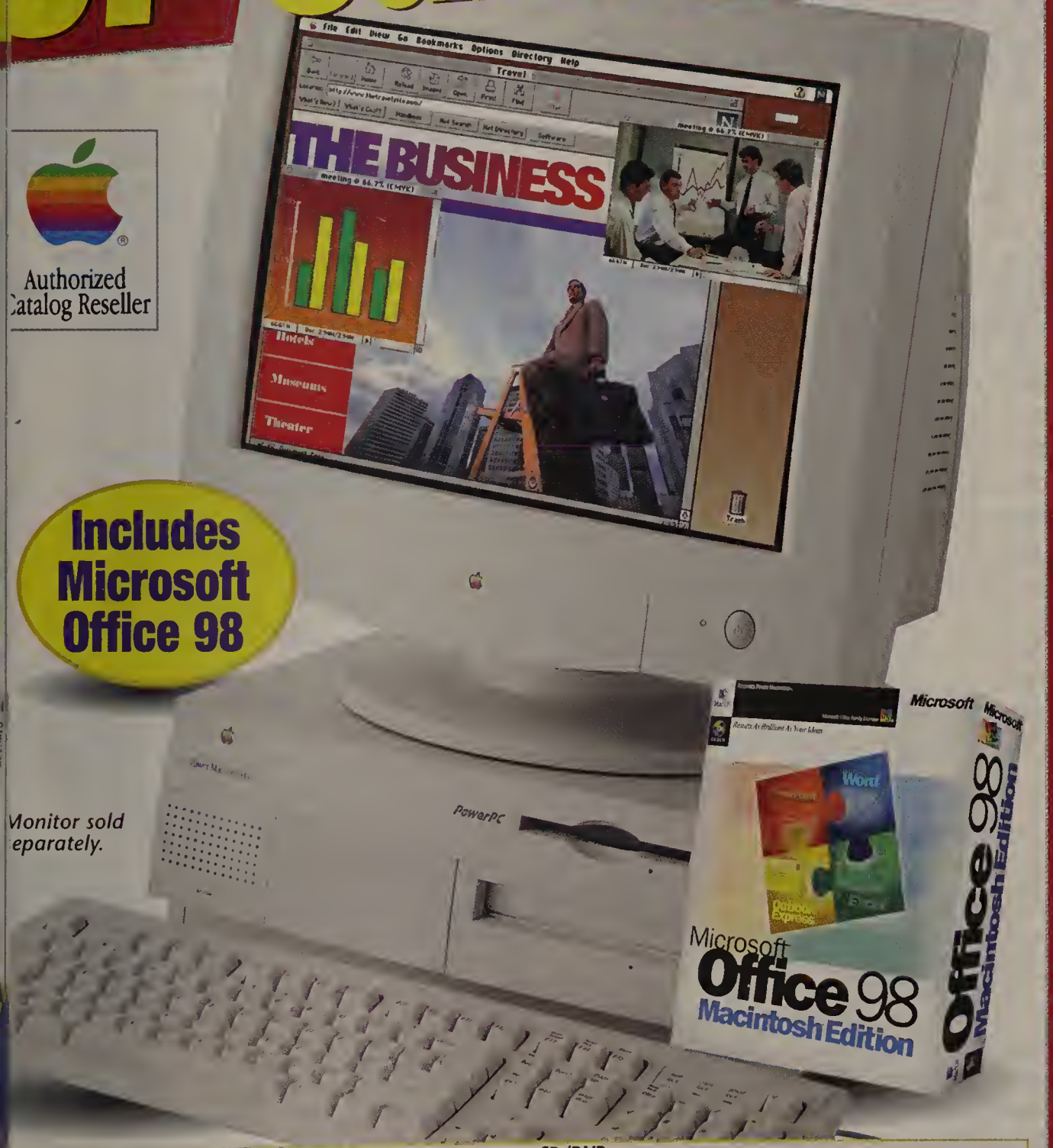
c! Call Now!

Order and you're automatically registered to **WIN!** 1999 Porsche Boxster. *Call for details.*



or register at **www.macmall.com**

Authorized Catalog Reseller



Order	Format	Speed	RAM	HD	Cache	CD/DVD-ROM	Modem	Feature(s)	Price	Or Lease
#40821 New!	Desktop	266MHz	64MB	4GB IDE	512K	24X CD	56K	10Base-T Ethernet Microsoft Office 98	$1,799	$72/mo.

MacMall Exclusive

Purchase any Mac® and take your pick!

64MB RAM FREE!
with any desktop, mini-tower or PowerBook!
$30 Installation fee applies.

or

Instant Cash Back!

$50 OFF	All products in this catalog priced between $1,297 - $2,299
$100 OFF	All products in this catalog priced between $2,300 - $2,499
$150 OFF	All products in this catalog priced between $2,500 - $2,999
$200 OFF	All products in this catalog priced between $3,000 - $3,499
$250 OFF	All products in this catalog priced between $3,500 - $4,396
$300 OFF	All products in this catalog priced between $4,397 and up

No coupons to mail in. No checks to wait for. Just instant savings! Best of all, there is no limit—so order as many times you want... and keep saving.

SAVE OVER $2000!

MacMall brings you Super Savings on HOT Software and Hardware with your computer purchase!

Go to **www.macmall.com** *for more details.*

All offers expire 2/22/99, unless otherwise noted or while supplies last.

We'll Beat ANY Advertised Price
on any Computer in stock!
We'll beat any price on any Mac® or PowerBook from any authorized Apple® catalog reseller, retail store, online store or apple.com!

"We'll beat any price" offer refers to any authorized Apple Catalog reseller, Retail store, Online Store or apple.com. Total rebates vary by machine and configuration. We'll Beat ANY price at the time of order, not after. Call for complete details.
We do our best to be accurate but occasionally mistakes occur. We are not responsible for any typographical, photographic or technical errors. Products and packaging may differ from stock available at time of shipment; we reserve the right to substitute equivalent items.

See our Web site for more deals!
savebig.macmall.com

Mention your Priority Source Code: #ZMWD931

MacMall
The Mall With It All...For Less!

what's new from MacWorld Expo?

HOT NEW USB PERIPHERALS FOR YOUR iMac™!

Epson Stylus® Color 640 Printer for the iMac

- Up to 5ppm black, 3.5ppm color
- Up to 1440 x 720dpi photo res.
- USB and serial ports; incl. USB cable

$199.99 #39384
w/iMac purchase!
2 Year Warranty.
While supplies last.

$40 Savings

#34786 Epson Stylus Color 740 USB Printer $279.99

Astra 1220U USB Scanner

- 600 x 1200 optical res. and 36-bit color
- Includes Adobe PhotoDeluxe, Presto! PageManager & OmniPage LE OCR
- Up to 8.5" x 11.7" USB interface for iMac

$109.99 #33722

Price reflects $40 mail-in rebate when you purchase the 1220U with an iMac™ thru 1/31/99. Reg. price is $149.99.

$40 Rebate

Iomega® Zip® 100MB USB Drive

zip 100

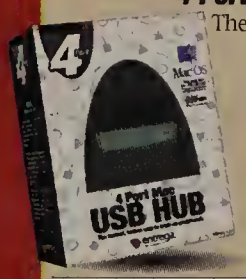
New Translucent Case!

Cartridge not included.

$149.99 #34314

4 Port iMac™ USB Hub

The fastest way to hook USB peripherals up to your iMac!



$79.99 #37587

#37588 7-Port USB Hub $129.99

Scanner promotion expires 1/31/99, all other promotions expire 2/22/99 unless otherwise noted or while supplies last.

The All-in-One Power-Packed Internet System for Your Home!

You've heard it a million times... "computers are hard to use and the operating systems aren't user-friendly." Then, came the Macintosh®. Now the company that started the PC revolution is helping parents, kids and students take advantage of Internet evolution. Introducing the iMac, the totally translucent computer that combines all the possibilities of the Internet with the magic of the Macintosh!

The Most Original Mac Since the Original Mac!

Key Features:

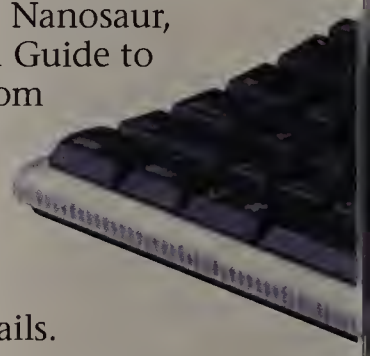
- 233MHz PowerPC G3 processor
- 512K backside Level 2 cache
- 4GB IDE Hard Drive
- 66MHz system bus
- 24X CD-ROM drive
- **NEW FEATURE:** 32MB of RAM (exp. to 256MB)
- Built-in 10/100Base-T Ethernet
- Built-in 56K Modem
- 15-inch (13.8-inch viewable) high quality display with 1024 x 768 resolution
- **NEW FEATURE:** ATI RagePro Graphics Controller
- Incorporates a high-quality monitor with minimal flicker and crystal-clear image
- Two 12Mbps Universal Serial Bus (USB) ports which support USB devices such as printers, storage devices and hubs
- One 4Mbps Infrared (IrDA) port

Plus:

- **NEW FEATURE:** 2MB VRAM built-in w/4MB SGRAM DIMM (6MB total)
- Built-in Stereo speakers w/SRS sound
- Includes 2D/3D graphics acceleration for outstanding multimedia support
- Adjustable, space-efficient keyboard
- Elegantly routes cables to avoid clutter and confusion

Also Includes:

- Mac OS 8.5, Adobe PageMill, Microsoft Internet Explorer with Outlook Express 4.01, AppleWorks 5 (formerly ClarisWorks), EdView Internet Safety Kit, Quicken Deluxe '98 from Intuit, FaxSTF from STF Technologies, MetaCreation's Kai's Photo Soap, MDK from InterPlay, Pangea Software's Nanosaur, Williams-Sonoma Guide to Good Cooking from Broderbund, and Earthlink's Total Access 2.01! Most software is pre-installed. Please call for details.



- Rear door allows easy access to a slide-out chassis housing both the main logic board (plus RAM and processor card) and storage devices.

Order Any Time! Open 24 Hours. 1-800-217-9492

Order Today by 10pm EST—Get it Tomorrow by 10:30am.

Call for details!

Order and register to WIN!
Win a 1999 Porsche Boxster.

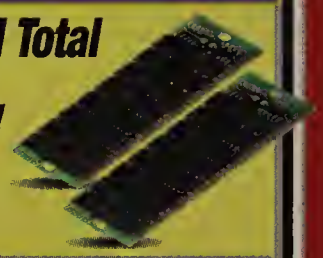
or register at
www.macmall.com

Apple® iMac™ only $29.99 #37333 or ALL for $1,297
See Apple Consumer Loan Disclosure below.

Authorized Catalog Reseller

EXCLUSIVE! only from MacMall
Choose 1 of These 4 Promotions!

1 96MB RAM Total
FREE Extra 64MB RAM!
a $159.99 Value!
ask for #34380
$30 installation fee applies...



2 FREE Color Scanner & FREE 32MB RAM with iMac!

SlimScan C3 USB for the iMac™
a $79 Value
ask for #37333

32MB RAM
a $89 Value
ask for #37333
$30 installation fee applies...

*Free after mail-in and instant rebates. Rebates valid through 1/31/99. While supplies last.

3 EXCLUSIVE Instant Cash Back!

$50 OFF! ask for #40902
All products in this catalog priced between $1,297 to $2,299!
Instant savings! There is no limit—so order...save more.

4 FREE AsanteTalk Ethernet to LocalTalk Connector for Printing and File Sharing
$99.00 VALUE!
Ask for item #35842.
See page 53 for details.

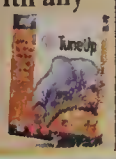
6 for FREE!

Descent/Mac Attack Bundle with any purchase!
#31155
$2.99 S/H. In promotional packaging. While supplies last!

Where in the World is Carmen Sandiego? with any purchase!
#38660
$2.99 S/H. In promotional packaging. While supplies last!

King's Quest & Shadow Wraith with any purchase!
#41224
$2.99 S/H. In promotional packaging. While supplies last!

Disk Drive Tune-Up with any Hard Drive purchase!
#31099
$3.99 S/H.
In promotional packaging. While supplies last!



Compton's Interactive Encyclopedia with any purchase!
#36119
$3.99 S/H. In promotional packaging. While supplies last!

6-Outlet Surge Protector with any purchase!
#38158
$2.99 S/H.
While supplies last!

SAVE OVER $2000!

MacMall brings you Super Savings on HOT Software and Hardware with your computer purchase!
Hurry! Offer expires 1/31/99.

Go to www.macmall.com for more details.

Apple Computer Loan Disclosure - [illegible] Introductory Rate of 5.9% for 90 days. Loan origination [illegible] On approved credit. Tax and shipping not included. $1000 purchased, 14.89% Annual Percentage Rate Subject to increase or decrease. [illegible] balance on day 91. Payments deferred for the first 120 days. No prepayment penalty. Apple logo is a registered trademark and iMac™ is a trademark of Apple Computer, Inc.

See our Web site for more deals!
savebig.macmall.com

Mention your Priority Source Code: #ZMWD931

MacMall
The Mall With It All...For Less!

what's new from MacWorld Expo

Add these Items to Your Order!

PowerBook G3 Accessories

Make your PowerBook G3 totally portable with these name-brand accessories!

#31413	Apple AC adapter	$74.99
#31414	Apple floppy disk drive	$99.99
#31412	Apple Lithium-ion battery	$199.99

HP DeskJet 340 Portable Printer with Mac Adapter

- Includes Free HP Color Kit and Mac adapter for PowerBook

$199.99

#41529 Factory refurbished.

HEWLETT PACKARD Expanding Possibilities

#74711 HP DeskJet 340 (New) $299.99

Special Offer!

Targus Carrying Case

Order any notebook in this catalog and get $10 off the regular price of a new Targus leather notebook case with nickel fittings!

$79.99

#30881

Internal Zip® for Your PowerBook!

Faster than desktop Zip drives—no cables or batteries required!

VST TECHNOLOGIES Incorporated

$199.99 #32071 *w/Notebook purchase reg. price $239.99*

56K V.90 PC Card Modem

Comes with games and drivers for both Mac and PC on the FREE Get Connected CD.

BEST DATA

#35713	56K V.90 PC Card Modem	$89.99
#32248	Megahertz 56K V.90 modem PC Card with XJack	$224.99

Don't Forget Memory! Upgrade your G3

VIKING COMPONENTS

#31437	16MB PowerBook G3 Series	$55.99
#31438	32MB PowerBook G3 Series	$95.99
#31440	64MB PowerBook G3 Series	$159.99
#31442	128MB PowerBook G3 Series	$319.99

Have your RAM professionally installed by one of our factory-trained technicians, for only $30. Ask for #2214.

The New G3 PowerBooks... Out-Perform Desktops!

With outstanding flexibility and enough power to handle any task, the PowerBook G3 Series sets a new standard in portable performance. Featuring the PowerPC G3 processor, the PowerBook G3 Series outperforms comparable Pentium and Pentium II processor-based notebook and desktop systems!

Get the fastest performance ever in a notebook computer!
Each system incorporates impressive multimedia capabilities, including a high speed CD-ROM drive (or DVD-ROM drive), with built-in video output. Custom configuration options meet your individual needs, at a price you can afford.

Outstanding multimedia options, easy expansion & built-in communications!
And, design innovations, such as two hot-swappable expansion bays for multiple storage options and Lithium-ion batteries, and a flip-up keyboard for easy access to RAM expansion and a removable hard disk drive—make it the greatest PowerBook yet!

Stellar Features at an Affordable Price!

Processor and Memory

- 233, 266 or 300MHz PowerPC G3 processor–fastest performance ever in a notebook!
- 66MHz system bus speed
- Integrated floating point unit and 64K on-chip Level 1 cache (32K for data and 32K for instruction)
- 32 or 64MB RAM; 2 SO-DIMM slots support up to 192MB RAM

Storage

- 2, 4, 5 or 8GB IDE hard drive
- 20X CD-ROM drive for use in expansion bay

Expansion & Networking Ports

- Two hot-swappable expansion bays
- ADB port, SCSI port, Serial port
- Built-in 10BASE-T Ethernet
- RJ-11 modem port, 4Mbps Infrared (IrDA) port
- PC Card Slots for two Type I, Type II or one Type III PC Card
- Flip up keyboard gives easy access to RAM expansion slot & removable hard disk drive

Graphics, Video & Sound

- Features high-quality display, up to 14.1 inches (diagonal)
- 2MB or 4MB SGRAM video memory
- Up to 14.1 inch (diagonal) displays features built-in TFT XGA active matrix display, supporting millions of colors at 1024 x 768 pixel resolution
- 2D/3D graphics, through integrated video controller
- S-video output for connecting to a TV
- 16-bit CD quality stereo input/output
- Two built-in stereo speakers

Portability

- Includes one Lithium-ion battery for up to 3.5 hours of normal use; supports two batteries for as much as 7 hours of use
- Sleek ergonomics for more efficiency

Software

- Mac OS 8.5 pre-installed

Order Any Time. Open 24 Hours. 1-800-217-9492

Order Today by 10pm EST—Get it Tomorrow by 10:30am.

Call for details!

Order and register to WIN!
Win a 1999 Porsche Boxster.

or register at
www.macmall.com

Apple® Macintosh® PowerBook™ G3
Starting at
Now $2,297!
#40776
Or Lease for $100 per month

tures a high lity display—up 4.1" diagonal.

up to 300MHz

Storage will never be an issue with up to 8GB hard drive space!

New!

Authorized Catalog Reseller

MacMall Exclusive

Purchase any Mac® and take your pick!

64MB RAM FREE!
64MB FREE with any CPU you see here!
$30 Installation fee applies.

or

Instant Cash Back!

$50 OFF	All products in this catalog priced priced between $1,297 - $2,299
$100 OFF	All products in this catalog priced between $2,300 - $2,499
$150 OFF	All products in this catalog priced between $2,500 - $2,999
$200 OFF	All products in this catalog priced between $3,000 - $3,499
$250 OFF	All products in this catalog priced between $3,500 - $4,396
$300 OFF	All products in this catalog priced between $4,397 and up

No coupons to mail in. No checks to wait for. Just instant savings! Best of all, there is no limit—so order as many times you want... and keep saving.

SAVE OVER $2000!

Hurry! Offer expires 1/31/99!

MacMall brings you Super Savings on HOT Software and Hardware with your computer purchase!

Go to www.macmall.com *for more details.*

6 NEW Models Available! Choose Your Ideal G3!

Order	Speed	RAM	HD	CD-ROM	Modem	Display	Weight	Was	Now	Or Lease
#40830	233MHz	32MB	2GB	20X	56K	12.1" Active Matrix	7.2lbs.	$2,299	$1,997	$80/mo.
#40856	233MHz	32MB	2GB	20X	56K	14.1" Active Matrix	7.8lbs.	$2,799	$2,497	$100/mo.
#40836	266MHz	64MB	4GB	20X	56K	14.1" Active Matrix	7.8lbs.	$3,499	$2,997	$120/mo.
NEW #40840	300MHz	64MB	8GB	20X	56K	14.1" Active Matrix	7.8lbs.	$4,499	$3,997	$160/mo.
#40842	300MHz	64MB	8GB	DVD	56K	14.1" Active Matrix	7.8lbs.	$4,999	$4,397	$176/mo.
#31414	Apple® floppy disk drive								$99.99	

*Price reflects Instant MacMall Rebate. While supplies last.

All offers expire 2/22/99, unless otherwise noted or while supplies last.

We'll Beat ANY Advertised Price
on any computer in stock! We'll beat any price on any Mac® or PowerBook from any authorized Apple® catalog reseller, retail store, online store or apple.com!

"We'll beat any price" offer refers to any authorized Apple Catalog reseller, Retail store, Online Store or apple.com. Total rebates vary by machine and configuration. We'll Beat ANY price at the time of order, not after. Call for complete details.
We do our best to be accurate but occasionally mistakes occur. We are not responsible for any typographical, photographic or technical errors. Products and packaging may differ from stock available at time of shipment; we reserve the right to substitute equivalent items.

See our Web site for more deals!
savebig.macmall.com

Mention your Priority Source Code: #ZMWD931

MacMall
The Mall With It All...For Less!

If You Don't See it,

Branded Memory

Peripheral Enhancements Corporation

Apple PowerMac G3

#41008	16MB SDRAM DIMM	$45.99
#41009	32MB SDRAM DIMM	$79.99
#41010	64MB SDRAM DIMM	$145.99
#41011	128MB SDRAM DIMM	$285.99
#41012	256MB SDRAM DIMM	$619.99

Apple Powerbook G3 Wallstreet

#41023	16MB SODIMM Module	$39.99
#41025	32MB SODIMM Module	$75.99
#41027	64MB SODIMM Module	$145.99
#41028	128MB SODIMM Module	$285.99

VIKING COMPONENTS

For Power Mac G3 Series

#24574	16MB SDRAM DIMM	$55.99
#24578	32MB SDRAM DIMM	$89.99
#24579	64MB SDRAM DIMM	$155.99
#24582	128MB SDRAM DIMM	$299.99
#30270	256MB SDRAM DIMM	$719.99

For Macintosh PowerBook G3 (blk)

#31437	16MB Module (10ns)	$55.99
#31438	32MB Module (10ns)	$95.99
#31440	64MB Module (10ns)	$159.99
#31442	128MB Module (10ns)	$319.99

Generic Memory

For Power Mac 7200-7600/ 8500-8600/9500-9600 Series

#72646	16MB DIMM (60ns)	$39.99
#72647	32MB DIMM (60ns)	$75.99
#72648	64MB DIMM (60ns)	$185.99

For Power Mac 4400 Series

#13936	16MB DIMM (60ns)	$55.99
#13937	32MB DIMM (60ns)	$89.99
#13938	64MB DIMM (60ns)	$169.99

For Power Mac 6500 Series

#93961	16MB DIMM (60ns)	$49.99
#93963	32MB DIMM (60ns)	$89.99
#93964	64MB DIMM (60ns)	$179.99

For Macintosh PowerBook G3 Series (non wallstreet)

#26311	32MB DIMM (60ns)	$79.99
#26312	48MB DIMM (60ns)	$125.99
#26313	64MB DIMM (60ns)	$139.99
#26314	96MB DIMM (60ns)	$175.99
#26315	128MB DIMM (60ns)	$239.99

For Power Mac G3 Series

#25730	16MB DIMM (10ns)	$39.99
#25747	32MB DIMM (10ns)	$59.99
#25750	64MB DIMM (10ns)	$109.99
#25821	128MB DIMM (10ns)	$229.99

Memory prices are subject to change due to market fluctuations. Please call for current prices.

PaperPort Strobe™ Scanner

PAPERPORT Strobe

- 24-bit color
- 300x 600dpi optical resolution
- 2400dpi

only **$99.99**

#32976

Factory refurbished. While supplies last.

1 YEAR WARRANTY

Palm III™ 2MB Organizer

3Com

Includes cradle, desktop software, stylus, flip cover, backlit screen and batteries Get a FREE Travel Case (mail-in rebate offer).

only **$299.99** #37097

Reg Price $345.99. While supplies last!

Palm III

Sony Multiscan 100ES Monitor

SONY

CPD-100ES 15"/14" 1280 x 1024/60Hz/.25mm

$199.99

#23949

1 YEAR WARRANTY

$30 Price Drop!

Epson Expression 636 Professional 2

EPSON

With full Photoshop 4.0 (free upgrade to 5.0 from Adobe) and transparency adapter!

$749.99 #41364

Factory refurbished. While supplies last.

MW ★★★★★

MacUser 4½

MacToday 4½

1 YEAR WARRANTY

Smart One 33.6 External Modem

BEST DATA

The lowest price around on an external modem!

FREE Integrated data/fax software

$19.99

#28937

Price reflects $20 mfr. mail-in rebate. Expires 1/31/99.

33.6 Data Fax Modem

SPECIAL!

56K V.90 External Modem

Get V.90 right out of the box.

$69.99

#39443

Blowout!

While supplies last.

Sony CD Recordable Disc

650MB, 74 min.

as low as **49¢ ea.**

#14452

After $20 mail-in rebate when purchased in quantity of 10.

SONY

12X External CD-ROM Drive

HI VAL

100ms access rate; 128K cache; durable, cooled case.

$89.99

#23968

Internal Zip for Your PowerBook

VST TECHNOLOGIES Incorporated

Faster than desktop Zip Drives. No cables or batteries required! 100MB capacity per disk; 11.2MB sec. transfer rate.

$199.99

#32071

with notebook purchase. Regular price $239.99

Stylus Color 800 Printer

Award-winning photo-quality, high-performance business printing!

$199.99 SAVE $50

#41386 *With CPU purchase. Reg. price $249.99*

EPSON

1440 dpi

2 YEAR WARRANTY

Fuji® 10-Pack Zip® 100MB Disks

as low as **$8.99 ea.**

#35550

New Low Price!

Price reflects $20 mfr. mail-in rebate when purchased in quantity of 10.

Jaz® 1GB External SCSI Drive

$199.99 #15813

- 6.6MB/sec. transfer rate
- Includes 1GB disk

Factory refurbished. 1 Year Warranty.

Stock up on Jaz Cartridges: #74545

1-2	3-5	6+
$99.99	$89.99	Call

Iomega® Zip® 100MB Drive Blowout!

$79.99 Zip® SCSI #98023

$99.99 ZipPlus™ #36821

While supplies last! Both models are factory refurbished with a 1 Year Warranty.

HP LaserJet 4MV Printer

HEWLETT PACKARD Expanding Possibilities

- Up to 11" x 17" prints
- Up to 16ppm
- Postscript and Ethernet ready

only **$999.99**

#66364

Up to 11" x 17"!

1 Year Warranty. While supplies last.

Order Any Time. Open 24 Hours. 1-800-217-9492

Order Today by 10pm EST—Get it Tomorrow by 10:30am.

Call Us! Over 1,200 Products

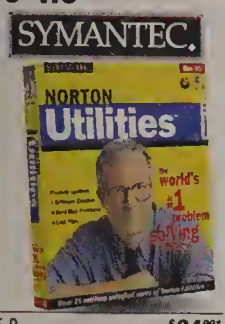
Norton Utilities 4.0

The #1 selling utility for the Mac.

Upgrade for only

$44.99 #34661

Price reflects $50 mfr. mail-in upgrade rebate for previous users.



#28475 Norton AntiVirus 5.0 **$24.99***

*Price reflects $40 upg/crossgrade rebate. Price before rebate $64.99

FileMaker Pro 4.1

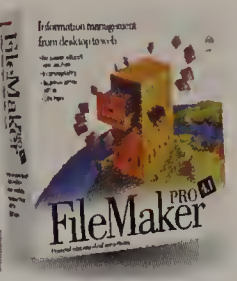
Upgrade for only

$127.99

#35820

Price reflects $50 mfr. mail-in upgrade rebate for previous users. Price before rebate is $177.99. Call for details.

FileMaker



SoftWindows 98 5.0

The fastest, most compatible software solution for running PC software on your Mac.

$159.99

#34482

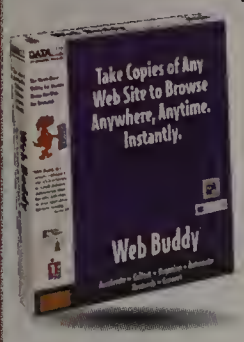
INSIGNIA SOLUTIONS

Web Buddy 2.0

Powerful Internet utility and a must-have for Web research!

only

$38.99 #34710



DATAVIZ Compatibility. Instantly.

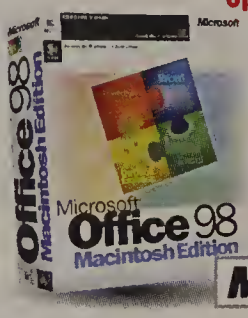
Microsoft Office 98

Upgrade for only

$258.99

#26155

Ask your Account Manager about special offers with purchase.



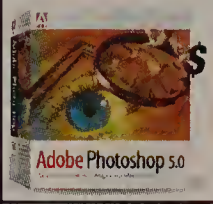
Adobe Photoshop 5.0

Includes new features like multiple undo, editable text, ColorSync support, spot colors and more!

Upgrade for only

$179.99 #30885

Upgrade CD Power Mac

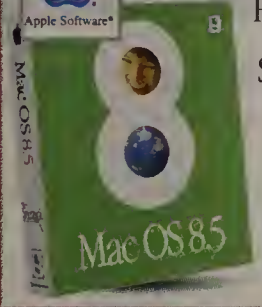


Mac OS 8.5

Smarter. Faster. Far more clever. Includes new Sherlock "find" technology.

for only

$88.99 #37231



QuarkXPress 4.0

The print and publishing standard!

for only

$694.99

#23098

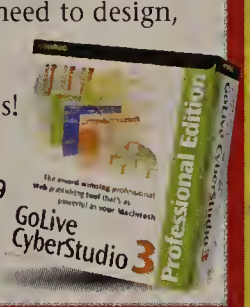
QUARK

GoLive Cyberstudio 3 Professional Edition

Everything you need to design, produce and maintain great looking Web sites!

$289.99 #31149

GoLive



Get Ready for Tax Season and Make the Most of Your Money with Intuit

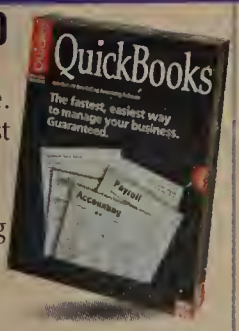
QuickBooks 4.0

#1 Best selling accounting software. The fastest and easiest way to manage your business.

- Speeds bill paying and invoicing
- Tracks customers, vendors, projects, accounts receivable and payable
- Includes integrated payroll

only $114.99 #78817

CD Mac/Power Mac



#78919 QuickBooks Pro 4.0 CD Mac/Power Mac **$184.99**

Quicken Deluxe 98

Get more for your money!

- Save money on taxes, insurance and mortgages
- Invest smarter
- Prepare for emergencies
- Customize reports

only $39.99 #14425

Price reflects $20 mfr. mail-in rebate. Price before rebate $59.99.

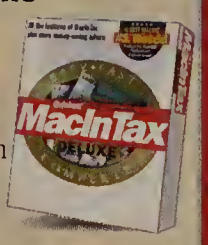
#14426 Quicken Basic 98 **$29.99***

*Price reflects $10 mfr. mail-in rebate. Price before rebate $39.99

MacInTax Deluxe–Rated #1 Best Selling Tax Software

- Guides you through your tax return
- Provides expert advice
- Prints or files your return electronically for free! (via mfr. mail-in coupon, one per customer)

only $49.99 #38038



#38562 MacInTax Mac/PPC CD **$38.99**

Introducing the All New Mac Software Buyer's Guide!

Call For Yours Today!

1-888-425-MALL

Visit our Online catalog at software.macmall.com

HOTTEST SOFTWARE DEALS!

Sidewinder Pro 3D Joystick with any software purchase over $100

FREE!

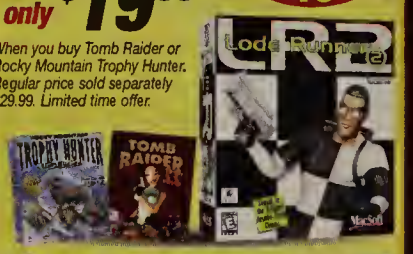
Ask for #39120 $9.99 S&H applies. Shipped in promotional packaging. MacMall special discount price $29.99 when sold separately. #39119

Lode Runner 2

SAVE $10

only $19.99

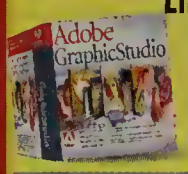
When you buy Tomb Raider or Rocky Mountain Trophy Hunter. Regular price sold separately $29.99. Limited time offer.



#41526 Lode Runner 2 plus Tomb Raider II **$69.99**

#41524 Lode Runner 2 Rocky Mountain Trophy Hunter **$39.99**

Buy Adobe Illustrator, Photoshop & PageMaker together and Save $591! Limited time offer!



Adobe GraphicStudio **for Only**

$949.99 #36500

Stuffit Deluxe 5.0

Aladdin Systems

Get 20% Better Compression!

New Version only

$29.99* #36969

*Price reflects $50 mfr. mail-in upgrade rebate for previous users. Offer expires 3/31/99.

We do our best to be accurate, but occasionally mistakes occur. We are not responsible for any typographical, photographic or technical errors. Products and packaging may differ from stock available at time of shipment; we reserve the right to substitute equivalent items.

See our Web site for more deals!

savebig.macmall.com

Mention your Priority Source Code: #ZMWD931

MacMall

The Mall With It All...For Less!

APS TECH

Don't you deserve

"The entire APS operation, as I see it, is a CLASS ACT! You were professional when answering my questions and taking the order. The package arrived when promised and was carefully arranged. The documentation was excellent. Furthermore, I was surprised to find the drive initialized and ready for operation. This has been a great experience and I will use APS in the future."

Paul Klenk
Attorney

APS I 9100 Ultra Wide SCSI

- Fastest hard drive APS has ever offered
- 9GB capacity at 10,000 rpm
- Top performance for graphics and video editing workstations, demanding servers

For the absolute maximum hard drive performance on an Ultra Wide SCSI-based system, ramp up with the APS I 9100 W. Based on the Ultrastar 9ZX mechanism, this drive offers seek times as low as 6.3ms and outstanding sustained data transfer rates (up to 17MB/s). Upgrade your high-performance workstations and servers to one of the fastest mechanisms in the world with the APS I 9100 W.

As low as $579.95
EL Configuration

APS ST 4000 Ultra Wide SCSI

- 7200 rpm Medalist Pro offers adequate performance for most business applications
- Excellent replacement drive for workstations

The ST 4000 is an excellent choice when you want to upgrade your corporate workstation storage. At a price like this, you can upgrade an entire accounting department without burning up your entire budget.

As low as $229.95
EL Configuration

APS Q 2000 Ultra SCSI

- Exceptional 2GB value for home computing
- Trusty Fireball Stratus mechanism

Based on the 5400 rpm Fireball Stratus, this economical drive gives you 2GB of basic storage for Internet finds, digital photos of your family and more.

$209.95
EL Configuration

APS ST 9000 Ultra Wide SCSI

- Third-generation Barracuda 7200 rpm drive with 9GB capacity
- Optimized for multi-user graphics and A/V

The ST 9000 W gives you blazing fast data transfer rates for graphics, prepress and multimedia applications. It is especially valuable in client/server environments. The ST 9000 features advanced technology to make you more productive. And with a third-generation mechanism, you can rest assured about its reliability.

$489.95
EL Configuration

APS Q 4500 Ultra Wide SCSI

- New 7200 rpm mechanisms have 30% faster internal data transfers
- Up to 11.5 MB/s sustained transfers and Ultra Wide SCSI for workstations, workgoup servers

The new Viking II mechanism boasts higher buffer-to-host (external) sustained data rates for increased productivity. And it contains fewer moving parts than theginal Viking for greater reliability and longevity.

$289.95
EL Configuration

APS Q 18000 Ultra Wide SCSI

- 7200 rpm and over 18GB for creative/marketing department and enterprise servers
- 1MB cache, average seek time of 7.8ms and 12MB/s transfers

The high-performance, dual-microprocessor architecture of the new Atlas III makes this drive ideal for demanding business applications. And this third-generation drive assure you the highest reliability.

$829.95
EL Configuration

APS I 9000 Ultra Wide SCSI

- Blazing Ultra Wide SCSI drive from the inventors of the hard drive
- 9GB capacity for video, departmental and workgroup servers
- 7200 rpm Ultrastar mechanism

The APS line of Ultrastar drives with Ultra Wide SCSI interfaces can boost productivity throughout your network. Excellent seek times and data transfer rates.

As low as $509.95
Internal Configuration

APS I 9000 Ultra2 Wide SCSI

- 7200 rpm and Ultra2 Wide SCSI for excellent performance and throughput
- 9GB drive handles multimedia, 3D, engineering and animation

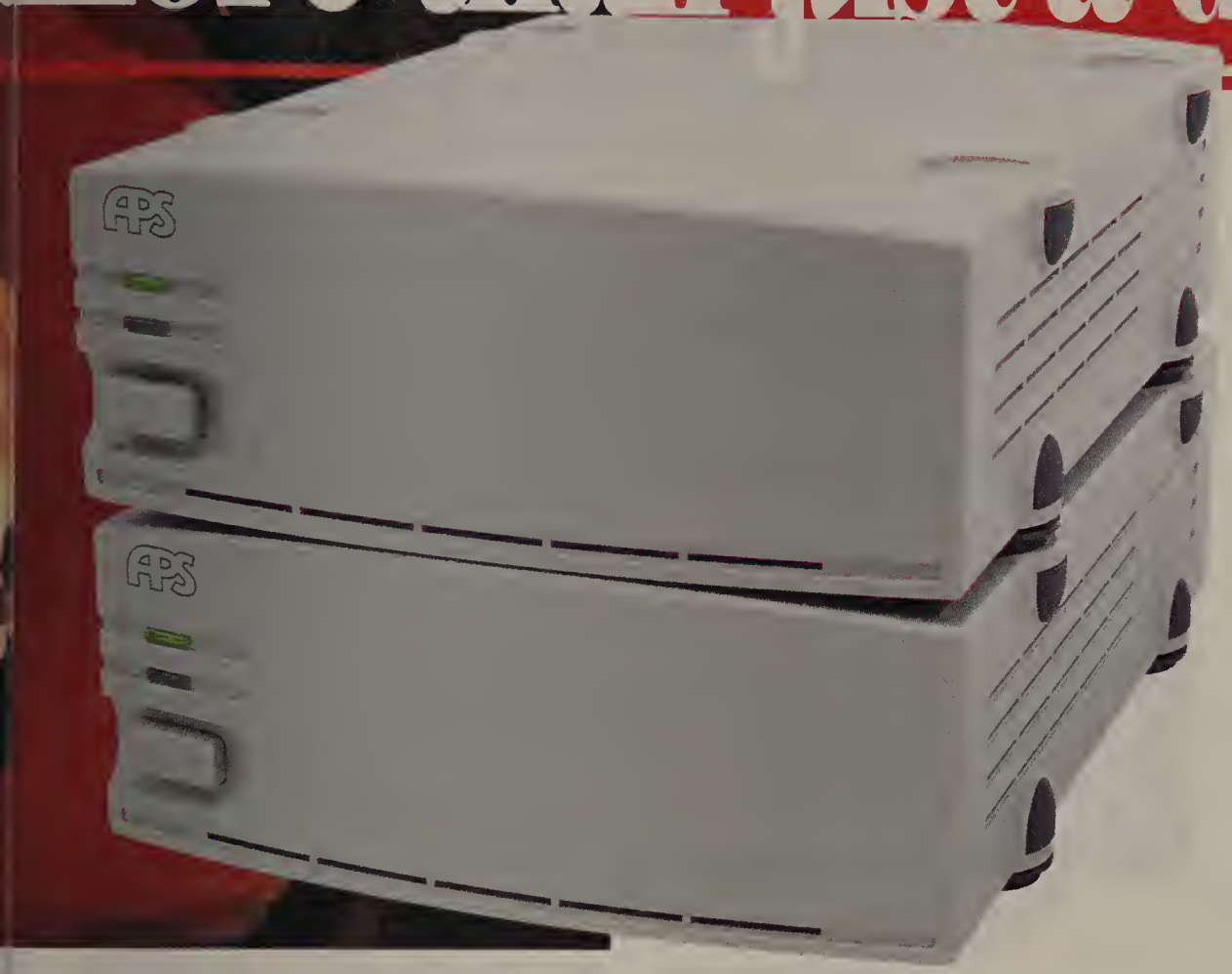
This drive offers outstanding performance for a 7200 rpm drive. Based on the Ultrastar 9ES, the I 9000 U2W gives you miniscule seek and access time and mammoth transfer rates. It also carries the peace of mind that comes with the IBM name. As they used to say, "No one ever got fired for buying IBM." We'd like to think they say the same about APS.

As low as $519.95
Internal Configuration

Drives on these pages are covered by the APS 30-Day Money-Back Guarantee.

Order from our special Online Catalog at http://www.apstech.com/mwspecial/

more than just a drive?



A great enclosure makes all the difference

The APS Pro enclosure gives you a combination of features that no one else offers. Like a powerful 40W universal power supply that helps your drive spin up to full speed. A full-metal RF/EMI shield that protects your data from interference from your other devices. A huge 60x60mm fan and patented IC²E® drive-cooling technology to keep even 10,000 rpm drives from overheating. And patented DATerm® (digital active termination) for smoother SCSI communications with other drives and your CPU. So demand APS drives in the exclusive APS Pro enclosure. Anything else is just a drive.

Best server storage value ever

APS I 18000

$899.95

Ultra SCSI Ultrastar

APS I 18000 Ultra2 Wide SCSI

- 7200 rpm drive with Ultra2 Wide SCSI
- 18GB capacity for enterprise, video servers

If you need fast server storage, and a lot of it, the I 18000 U2W is the answer. This Ultrastar-based drive offers excellent seek times and transfer rates. The Ultra2 Wide interface pushes large files through the pipeline at breakneck speed. And if you choose the APS Pro enclosure, integration is fast and painless. Call today.

As low as $819.95

Internal Configuration

APS Q 4500 Ultra2 Wide SCSI

- Jump into Ultra2 SCSI with dependable 7200 rpm Viking II
- 4.5GB for corporate workstations

The Viking II Series offers solid performance and reliability for your executive-level workstations. This line also offers advanced multi-layer data integrity features and high internal data transfer rates.

As low as $299.95

Internal Configuration

APS 12000 Ultra ATA

- 5400 rpm hard drive (12GB) with inexpensive Ultra ATA interface
- Excellent choice for economical file and Web server storage

Save time, save effort AND SAVE MONEY with the APS Ultra ATA series of drives. When all the drive mechanisms out there don't vary by more than 5% or so in performance, why drive yourself crazy trying to make a buying decision? We've done the research for you, picking the best Ultra ATA storage options from the world's premier mechanism manufacturers. You always get the best price/performance possible with an APS Ultra ATA drive.

As low as $279.95

Internal Configuration

APS ULTRA SCSI HARD DRIVES

Model	Description	EL	Int.	Pro
APS Q 2000	Quantum Fireball SE, 2079MB, 5400 rpm	$209.95	$219.95	$279.95
APS Q 3000	Quantum Fireball ST, 3118MB, 5400 rpm	219.95	229.95	289.95
APS Q 4000	Quantum Fireball ST, 4136MB, 5400 rpm	269.95	279.9	339.95
APS ST 4000	Seagate Medalist Pro, 4520MB, 7200 rpm	229.95	239.95	299.95
APS I 4500	IBM Ultrastar, 4357MB, 7200 rpm	259.95	269.95	329.95
APS Q 6400	Quantum Fireball ST, 6236MB, 5400 rpm	359.95	369.95	429.95
APS ST 6000	Seagate Medalist Pro, 6580MB, 7200 rpm	369.95	379.95	439.95
APS Q 8000	Quantum Fireball SE, 8191MB, 5400 rpm	429.95	439.95	499.95
APS I 9000	IBM Ultrastar 9ES, 8715MB, 7200 rpm	499.95	509.95	569.95
APS ST 9000	Seagate Medalist Pro, 9140MB, 7200 rpm	399.95	409.95	469.95
APS I 18000	IBM Ultrastar, 17501MB, 7200 rpm	799.95	809.95	869.95
APS Q 18000	Quantum Atlas III, 17366MB, 7200 rpm	849.95	859.95	919.95

APS HIGH-PERFORMANCE ULTRA2 WIDE SCSI HARD DRIVES

Model	Description	Int.	Pro
APS Q 4500 U2W	Quantum Viking II, 4240MB, 7200 rpm	$299.95	$369.95
APS Q 9000 U2W	Quantum Viking II, 8682MB, 7200 rpm	519.95	589.95
APS ST 9000 U2W	Seagate Barracuda, 8683MB, 7200 rpm	509.95	579.95
APS ST 9100 U2W	Seagate Cheetah, 8681MB, 10,000 rpm	729.95	799.95
APS ST 18100 U2W	Seagate Cheetah, 18201MB, 10,000 rpm	1,179.95	1,249.95

APS HIGH-PERFORMANCE ULTRA WIDE SCSI HARD DRIVES

Model	Description	EL	Int.	Pro
APS ST 4000 W	Seagate Medalist Pro, 4520MB, 7200 rpm	$249.95	$259.95	$339.95
APS I 4500 W	IBM Ultrastar 9GS, 4357MB, 7200 rpm	279.95	289.95	369.95
APS Q 4500 W	Quantum Viking II, 4345MB, 7200 rpm	289.95	299.95	379.95
APS ST 6000 W	Seagate Medalist Pro, 6520MB, 7200 rpm	379.95	389.95	469.95
APS I 9000 W	IBM Ultrastar 9ES, 8715MB, 7200 rpm	509.95	519.95	599.95
APS Q 9000 W	Quantum Viking II, 9000MB, 7200 rpm	509.95	519.95	599.95
APS ST 9000 W	Seagate Barracuda, 8683MB, 7200 rpm	489.95	499.95	579.95
APS I 9100 W	IBM Ultrastar 9ZX, 8705MB, 10,000 rpm	579.95	589.95	669.95
APS I 18000 W	IBM Ultrastar 18XP, 17501MB, 7200 rpm	819.95	829.95	909.95
APS Q 18000 W	Quantum Atlas III, 18201MB, 7200 rpm	829.95	839.95	919.95
APS ST 18000 W	Seagate Barracuda, 18000MB, 7200 rpm	799.95	809.95	889.95

APS ATA HARD DRIVES

Model	Description	Internal
APS 2000 ATA	5400 rpm	$119.95
APS 3000 ATA	5400 rpm	139.95
APS 6000 ATA	5400 rpm	179.95
APS 10000 ATA	5400 rpm	229.95
APS 12000 ATA	5400 rpm	279.95

APS TECH

Advanced tools for digital visionaries

Call 800-285-0638

24 HRS/7 DAYS A WEEK

Corporate Sales (800) 554-3941
International (816) 920-4109

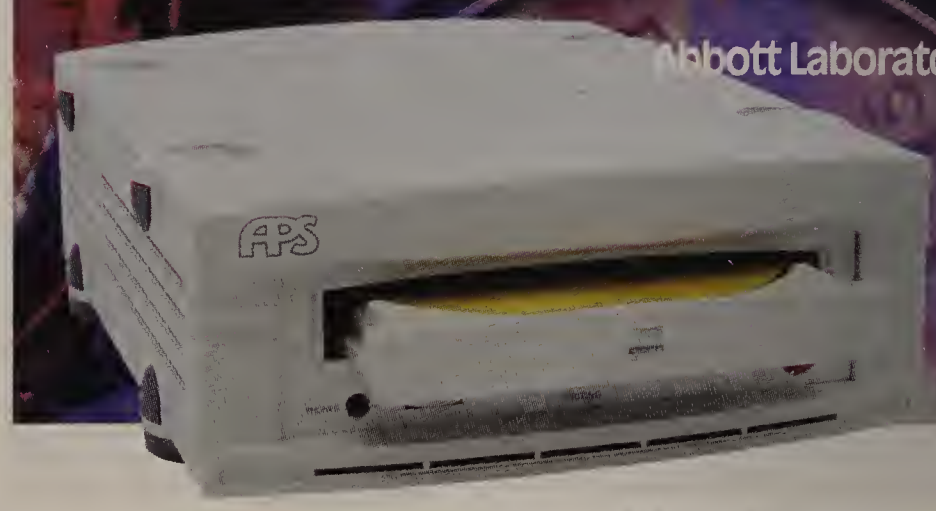
APS Technologies • 6131 Deramus • Kansas City, MO 64120

APS TECH

How to protect and

"Although I have purchased drives from other vendors, I have yet to find the levels of service and support both before and after the sale as I have experienced while working with APS. I have even had help on restoring lost data. I choose APS because I know that if I need a product fast, well made, and a company to stand behind it, there is no one else to call."

John P. Grace
Abbott Laboratories Research



APS CD 36

- CD-ROM takes another leap in speed
- 36X max. speed for multimedia, photo and reference CDs
- Reads all CD formats, including CD-RW discs

The CD 36 takes you to the next level. Based on a 36X mechanism, this drive can transfer data up to 5.4MB/s, as fast as many hard drives. This CD reader understands all of your discs, too, including custom CD-R and CD-RW discs. Available in our economical Slimline enclosure. Whether you are looking to give your business an edge or just want to enjoy uninterrupted multimedia titles, the APS CD 36 delivers.

As low as $139.95
External Configuration

APS CD-R 4x12

- Excellent price/performance
- Top value for multimedia producers, music, design and prepress pros

The APS CD-R 4x12 is one of our best recordable CD values. With 12X read and 4X write capabilities, you can burn multimedia and audio CDs at 1X, 2X or 4X speeds in any standard recording format. Includes all the CD recording software you need.

As low as $379.95
External Configuration

APS CD-R 4x8

- Excellent value for burning CDs for personal or small business uses
- Includes PC/Mac recording software

The APS CD-R 4x8 gives you excellent price/performance for CD production at home. Powered tray-loading eliminates inconvenient caddies.

As low as $269.95
External Configuration

APS CD-ROM/R/RW DRIVES & CD CHANGERS

Model	Description	External
APS CD36	36X CD-ROM in Slimline Case	$139.95
APS 5-CD Changer	Nakamichi 5 Disc/16X CD-ROM, Pro Enclosure	259.95
APS CD-R 4X8P	4X record/8X read CD-R in SR 2000 or APS Pro Enclosure	269.95
APS CD-R 8X20	8X record/20X read CD-R in Pro Enclosure	599.95
APS CD-R 4X12	4X record/12X read CD-R in Pro Enclosure	379.95
APS CD-RW	2X record/2X rewrite/6X read CD-RW in Pro Enclosure	319.95
APS CD-RW	4X record /4X rewrite/16X read CD-RW in Pro Enclosure	439.95

APS CD-R 8x20

- Super-speedy CD burner for creative professionals
- 8X record/20X read mechanism
- Includes full-featured CD recording software for Mac and PC

Hit the afterburner! The CD-R 8x20 is our fastest CD recorder ever. The blazing 8x20 mechanism cranks out your CDs in record time, so you spend less time burning and more time creating. If your payday depends on producing CDs, punch in with the APS CD-R 8x20.

As low as $599.95
External Configuration

Order from our special Online Catalog at http://www.apstech.com/mwspecial/

APS CD-RW 4x4x16

- 167% faster reads and 100% faster rewrites than CD-RW Pro 4x2x6
- The ultimate rewritable CD drive for professional environments

APS proudly introduces our fastest rewritable CD drive ever. The 4x4x16 is fast enough to handle all CD functions, including 16X reads for power users. This tray-loading drive offers a huge 2MB buffer to prevent underruns and failed recordings. The 4x4x16 is Flash ROM-upgradeable for future formats and operating systems. Plus, you get full-featured, professional-level recording software for both Mac and PC. No matter if you develop demanding multimedia or software, produce music or graphic designs, the CD-RW 4x4x16 is the only CD drive you need.

As low as $439.95
External Configuration

APS CD-RW 2x2x6

- Record, read, and edit any kind of data on CD-RW media
- Also records on inexpensive, play-anywhere CD-R discs

Whether you're producing a multimedia title or just want to send your mother a QuickTime movie of your honeymoon, this versatile drive is the inexpensive solution for writing and reusing CD-RW discs. The APS CD-RW 2x2x6 also writes to cost-effective CD-R discs. It can even play your gaming CD-ROMs and music CDs. This drive provides 2X recording, 2X rewriting, and 6X playback. The APS CD-RW drive includes all the Mac and PC recording software you need to master your CDs. Ships in the APS Pro enclosure.

As low as $319.95
External Configuration

distribute your projects faster

APS HyperDAT®

- Up to 8GB (compressed) of storage on one 120m DDS-2/DAT tape
- Excellent desktop/workstation backup

As low as $549.95
Internal Configuration

Backup Special
APS DLT 40
$1,999.95

Surf on over to www.apstech.com for information on the APS DLT 40

APS HyperDAT® III

- 12GB native backup for high-end workstations, entry-level networks
- New, more reliable DDS-3 technology

The APS HyperDAT III provides a cost-effective solution to the backup storage needs of data-intensive systems. Using DDS-3 technology, the APS HyperDAT III delivers a narrower track width than DDS-2 for a much higher density and more data storage. The increased density combines with Sony's precise tape control system to deliver a sustained data transfer rate of 1MB per second.

As low as $979.95
Internal Configuration

APS HyperQIC®

- Up to 8GB per TR-4 tape with new NS8 hardware compression
- The worldwide standard in desktop backup is now better than ever

Our HyperQIC drive uses Travan-4 tape cartridges to deliver up to 4GB on a single tape without compression! (8GB with 2:1 data compression.) The APS HyperQIC is read/write compatible with QIC3095 and QIC3080 cartridges. This drive can also read QIC80, QIC3010, and QIC3020 tape cartridges. The APS HyperQIC includes backup software and a two-year limited warranty.

(While the APS HyperQIC will accept all of the media listed, compatibility issues with the software used to record those tapes may make it impossible for you to read those tapes with your current backup software.)

As low as $299.95
Internal Configuration

APS HyperQIC® II

- Brand-new Travan-5/NS20 technology – safeguard up to 20GB per cartridge
- Hardware data compression for faster, more efficient backups

Next-generation Travan-5 cartridges give you up to 20GB compressed (10GB native) capacity. That's two and a half times more storage than previous Travan media. And new Travan NS technology adds hardware compression for more efficient data compression and faster transfers. If you need reliable, fast backup for a desktop or workstation, move up to the APS HyperQIC II. Includes backup software for Macintosh (Retrospect or NovaBack) or Windows (NovaBack and Cheyenne).

As low as $499.95
Internal Configuration

APS HyperDAT® Pro

- Backup and restore speeds as high as 50MB per minute
- Up to 8GB of storage per 120m DAT/DDS-2 tape cartridge

Backup in less time! The APS HyperDAT Pro is perfect for high-end desktop backups. With standard 120m DDS-2 tapes the APS HyperDAT Pro can backup up to 8GB of data (assuming 2:1 hardware compression). The HyperDAT Pro can also use economical 60m and 90m tapes. Comes with backup software and includes a two-year warranty.

As low as $699.95
Internal Configuration

APS TAPE BACKUP SYSTEMS

Model	Description	Internal	External
APS HyperQIC®	Travan-4/NS8/QIC	$299.95	$349.95
APS HyperQIC® II	Travan-5/NS20/QIC	499.95	549.95
APS HyperDAT®	DDS-2/DAT (4-8GB)	549.95	599.95
APS HyperDAT® Pro	Quad-speed DDS-2/DAT (4-8GB)	699.95	749.95
APS HyperDAT® III	DDS-3/DAT (12-24GB)	979.95	1,029.95
APS HyperDAT® IV	DDS-4/DAT (20-40GB)	1,299.95	1,349.95
APS Mini Library	4mm DDS-2 AutoLoader (32-64GB)	N/A	2,399.95
APS DLT40	DLT 4000 (20-40GB)	N/A	1,999.95
APS DLT70	DLT 7000 (35-70GB)	N/A	4,999.95
APS AIT	8mm W/DC (25-50GB)	N/A	2,199.95
APS AIT Autoloader	8mm, 200GB on 4 tapes	N/A	4,899.95

Drives on these pages are covered by the APS 30-Day Money-Back Guarantee.

APS HyperDAT® IV

- Longer tape, higher density vault DDS-4 into corporate network backup
- 20GB native capacity, 2-3MB/s transfers

If you trust your desktop and workstation backup to DDS, but it doesn't meet your server or workgroup needs, it's time to take a second look. New DDS-4 technology has increased capacity by 67% over DDS-3 and shrunk your backup time in half. DDS-4 uses longer tapes with thinner tracks and improved durability. But the HyperDAT IV can read and write to your DDS-3 and even DDS-2 tapes, so migration is easy.

As low as $1299.95
Internal Configuration

APS® TECH
Advanced tools for digital visionaries

Call 800-285-0638
24 HRS/7DAYS A WEEK

Corporate Sales (800) 554-3941
International (816) 920-4109
APS Technologies • 6131 Deramus • Kansas City, MO 64120

APS® TECH

Finally, professional!

APS Jaz II

- A staggering two gigabytes of removable storage
- Perfect for digital video professionals and service bureaus

MW EDITORS' CHOICE

Introducing the next big thing: the APS Jaz II. Based on revolutionary Jaz technology, this drive offers a whopping two gigabytes of removable storage. And the new Jaz II is even faster, coming closer still to hard drive access and read/write speeds. This drive will also read and write to your current 1GB Jaz disks, so you don't have to worry about wasted investment. For digital video, multimedia and publishing businesses, the APS Jaz II is perfect for carrying huge files and quickly accessing client data. It's time to move up to the APS Jaz II. Includes one disk.

As low as $399.95
External Configuration

LaCie EKO Jaz II

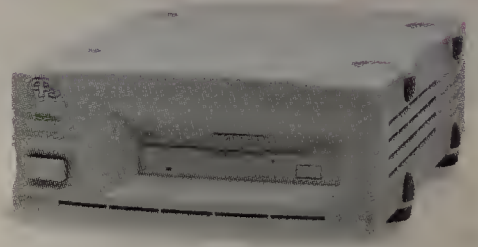
- 2GB Jaz drive in intelligent EKO case
- Built-in power supply eliminates extra equipment
- Internal fan keeps drive and disks cool

The LaCie EKO Jaz II takes the original and makes it better. It's even more portable than Iomega's own, since you don't need to lug around a power supply. And it includes an internal fan, unlike the original, that keeps the drive and its disk cool even at full speed. The LaCie EKO Jaz II also accepts Jaz 1GB disks. So if you want the portable powerhouse that's better than the original, order the LaCie Jaz II.

As low as $299.95
EKO Enclosure

APS 640 MO

- Read/write compatible with 640, 230 and 128 MO
- New Direct OverWrite technology cuts rewrite time in half with LIMDOW MO disks



Stunning formatted capacity of up to 606MB on 3.5" 640 MO media. Store large graphics and database files and transport large amounts of data when traveling. Sustained reads of up to 2.19MB per second and sustained writes of up to 6.28MB per second, plus LIMDOW technology eliminates the erase cycle of rewriting. Available externally in the APS Pro enclosure with DATerm and our patented IC²E technology. Backed by one-year limited warranty.

As low as $349.95
External Configuration

Sony Multiscan CPD-L150 15" LCD Display

- Reclaim your deskspace – only 6.5" deep
- Sharp 1024 x 768 at 85Hz reduces eyestrain
- Perfect for cramped studios and content creation cubicles

Sometimes, it's good to be shallow. The CPD-L150 takes up so little valuable deskspace. But it packs a sharp, vivid picture into its convenient LCD display. Digital FlexRes technology gives you a crisp full-screen image no matter what resolution you choose. The high refresh rates reduce eye problems associated with computer work, including eyestrain, blurred vision and headaches. On-screen display and lock-out features let you set and keep the perfect settings for you. So reclaim your deskspace with the Sony Multiscan CPD-L150. Just try not to use the extra space for another in-box.

$1,499.95

Surf on over to
http://www.apstech.com
for more multimedia tools

Sony CPJ-D500 Portable Projector

- Lightweight projector for heavyweight presentations
- 8.3lbs. and sets up in seconds

The CJP-D500 helps you hit your audience right between the eyes, but takes it easy on your back. Fully VGA-compatible, the CPJ-D500 gives you 24-bit color output at 640 x 480 resolution from a bright, long-lasting 80-watt metal halide bulb. Includes an RCA video input jack, microphone input jacks and stereo headphone output jack to drive external speakers. Accepts PC, Macintosh, NTSC and PAL input. Includes RGB and power cables, presentation software and carrying case.

$1,999.95

level tools for content creators

APS Hardware RAID Systems

- Fast access, mammoth capacity and increased availability
- RAID 0, RAID 1, RAID 0 +1, RAID 4, RAID 5
- Hot-swappable redundancy in drives, power supplies and cooling fans
- Perfect for centralized storage of digital images, graphic design, digital video editing

There is no better way to store, work with and protect your files and data than with the APS Hardware RAID System. With your choice of RAID levels, you can choose from maximum speed (striping), maximum data availability (mirroring) or a combination of both. This advanced RAID system offers powerful features like fault detection, background reconstruction, five hot-swappable hard drives, and an Ultra Wide SCSI interface. If you work in CAD/CAM, 3D modeling, animation, multimedia, non-linear digital video editing or high-end design and imaging for print, there is no substitute for the sheer power of the APS Hardware RAID.

AS LOW AS $9,999.95

Five 10,000 rpm Cheetah drives, 42.4GB capacity

Sony DCR-TRV9 Digital Video Camcorder

- 1/4" 680K pixel CCD for excellent DV picture quality
- 15X optical/180X precision digital zoom lens for field work
- iLINK/IEEE 1394 interface for totally digital transfers – no loss of quality

The DCR-TRV9 gives you professional quality and features at a budget-conscious price. This DV camcorder gives you smooth, colorful video that you can watch on your TV, add to your Web site or use in your presentation. The IEEE 1394 interface means there is no conversion from digital to analog formats, preserving the image and sound quality. The LP mode lets you record 90 minutes of digital video on one 60-minute DV cassette. You can even capture 16-bit stereo audio for a complete multimedia experience. So explore the world of digital video for business and pleasure with the DCR-TRV9.

$1,799.95

APS TECH

Advanced tools for digital visionaries

Sony MVC-FD81/91 Digital Mavica Cameras

- Convenient digital cameras capture photos and video
- Store and transfer content on standard floppy disks
- Add images and multimedia to presentations, Web sites, e-mail

MVC-FD91

You don't have to spend thousands of dollars to get visual content for business or personal use. The MVC-FD81/91 Digital Mavica Cameras grab digital photos and video quickly. And these smart cameras store their contents on standard floppies that you can use to transfer your images to your Mac or PC. The FD81 offers a 3X zoom lens. The FD91 really gets in there at 14X. You also get professional features like 3-mode auto exposure, manual exposure, flash and self-timer. These cameras use a 1/3" progressive CCD to capture 850K pixel images. And you can record up to 15 seconds of presentation-quality MPEG video or 60 seconds for a video e-mail. So why not add some multimedia to your business and your life? Pick up a MVC-FD81/91 Digital Mavica Camera today.

MVC-FD81

MVC-FD 81 $779.95

MVC-FD 91 $979.95

Call 800-285-0638

24HRS/7DAYS A WEEK

Corporate Sales (800) 554-3941
International (816) 920-4109
APS Technologies • 6131 Deramus • Kansas City, MO 64120

Mac OS is a registered trademark of Apple Computer, Inc. APS and APS Technologies are registered trademarks Other brand or product names are registered trademarks or trademarks of their respective holders.

- *30-day money-back satisfaction on all APS brand drives and accessories. Your risk is the cost of shipping.*
  Monitors and 3rd party products carry warranties from their respective manufacturers.
- *SCSI cables sold separately.*
- *APS' warranty is a pass-through of the mechanism manufacturer's warranty which will be serviced by APS for one year. APS warrants APS branded enclosures, brackets and power supplies for a period of one year from the date of purchase and will, at its discretion, replace or repair products found to be defective according to the specific terms of the warranty accompanying the product.*
- *Refused orders subject to 20% restocking fee.*
- *International customers must pay for all shipping charges.*
- *Listed capacities are formatted.*
- *Actual data compression and tape capacity vary greatly depending on the type of data recorded, other system parameters and environment.*
- *Prices and specifications are subject to change without notice.*
- *You must install system software appropriate to your machine before using our hard drives.*
- *Not responsible for typographical errors.*
- *Your APS Drive unit may contain one or more components that were in prior use, but which have been inspected and repaired or rebuilt as necessary. These components, if any are covered by the same warranty provisions, exclusions and limitations to the same extent, and on the same terms as otherwise "new" components.*
- *© 1999, APS Technologies. All Rights Reserved.*

ClubMac® SAVE BIG BUCKS

Seagate

MEDALIST PRO 4.5GB
9.5MS 7200 RPM Bare

ONLY $259

DRIVE SPECIALS

STRATUS SE
Quantum 2.1GB 5400 RPM $209 Bare

BARRACUDA 18
Seagate Ultra Wide 18.2GB 7200 RPM $879 Bare

ULTRASTAR 9ZX
IBM Fast & Wide 9.1GB 10,000 RPM $479 Bare

VIKING II
Quantum Ultra2 Wide 9.1GB 7200 RPM $439 Bare

HARD DRIVES

Quantum

Quantum Stratus drives carry a 3 Year Warranty
Quantum Atlas & Viking drives carry a 5 Year Warranty

Description	Model	Access	RPM	Bare	Ext
Ultra SCSI-3					
2.1GB Stratus SE	QM32160SES	10ms	5400	$209	$279
3.2GB Stratus SE	QM33240SES	10ms	5400	$239	$309
6.4GB Stratus SE	QM36480SES	10ms	5400	$359	$429
8.4GB Stratus SE	QM38420SES	10ms	5400	$479	$549
9.1GB Atlas III	QM309100TDS	7.8ms	7200	$489	$559
18.2GB Atlas III	QM318200TDS	7.8ms	7200	$849	$919
UltraWide SCSI-3					
4.5GB Viking II	QM304550PXSW	7.5ms	7200	$279	$369
9.1GB Viking II	QM309100PXSW	7.5ms	7200	$439	$529
9.1GB Atlas III	QM309100TDLW	7.8ms	7200	$489	$589
18.2GB Atlas III	QM318200TDLW	7.8ms	7200	$849	$949
IDE Drives					
3.2GB Fireball EX	QM303200EXA	9.5ms	5400	----	$129
5.1GB Fireball EX	QM305100EXA	10ms	5400	----	$149
6.4GB Fireball EX	QM306400EXA	9.5ms	5400	----	$169
10.2GB Fireball EL	QM310200ELA	9.5ms	5400	----	$239
12.7GB Fireball EX	QM312700EXA	10ms	5400	----	$279

Seagate

Barracuda & Cheetah drives carry a 5 Year Warranty
Medalist drives carry a 3 Year Warranty

Ultra SCSI-3						
4.5GB	Medalist Pro	ST34520N	9.5ms	7200	$259	$329
6.5GB	Medalist Pro	ST36530N	9.5ms	7200	$339	$409
4.5GB	Medalist Pro	ST39140N	9.5ms	7200	$439	$509
9.1GB	Barracuda 9LP	ST39173N	7.1ms	7200	$459	$529
18.2GB	Barracuda 18	ST118273N	7.1ms	7200	$879	$949
UltraWide SCSI-3						
9.1GB	Barracuda 9LP	ST39173W	7.1ms	7200	$459	$549
9.1GB	Cheetah 9LP	ST39102LW	12.2ms	10000	$719	$819
18.2GB	Barracuda 18	ST118273W	7.1ms	7200	$879	$969
18.2GB	Cheetah 18	ST118202LW	12.2ms	10000	$1249	$1349

IBM

IBM drives carry a 5 Year Warranty

UltraWide SCSI-3						
9.1GB	UltraStar 9ES	00K3990	7.5ms	7200	$459	$549
9.1GB	UltraStar 9ZX	59H6590	6.5ms	1000	$479	$569
18.2GB	UltraStar 18XP	59H6591	6.5ms	7200	$829	$919

THE CLUBMAC PACKAGE

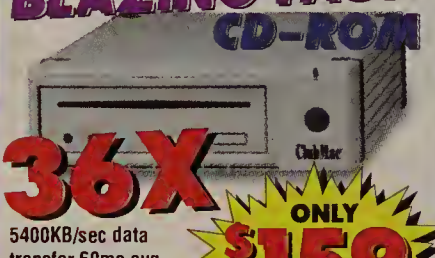
ClubMac drives are preformatted and thoroughly tested. ClubMac external drives include a 30-Day Money Back Guarantee, Charismac Anubis Formatting Utility software, user's guide, 25/50-pin SCSI cable and power cord (wide drives include 68/68 pin SCSI cable). Bare drives include mounting screws only.

INTERNAL HARD DRIVE KITS

Need a bracket and formatting software for your hard drive? ClubMac Internal Hard Drive Kit's include Charismac's Anubis Hard Drive Utility (with Power Control), a bracket and screws- ask your customer service representative which one you need.

CLUBMAC CDROM – CDR – CDRW – DVD

BLAZING FAST! CD-ROM



36X ONLY $159

5400KB/sec data transfer 60ms avg access time
Caddy-less design

CLUBMAC CD-ROM READERS
36X 60ms 5400k/sec. $159

ClubMac® 4X/8X

Toast 3.5 Direct CD Easy CD Creator Mac or PC Compatible!

$315

CLUBMAC CD-RECORDERS
4X/8X CD-R w/Software $315
4X/12X CD-R w/Software $359

CLUBMAC CD-REWRITABLE
4X/2X/6X CDRW w/Software $399
4X/4X/16X CDRW w/Software $449

ClubMac® External DVD Kit

$399 Play DVD Movies! DVD VIDEO

ClubMac NEW PRODUCT

- Backward Compatibility w/CD
- Great Video Quality
- 20X CD Speed
- Front Slot-Loading
- Outstanding Software
- 2.6X DVD Speed

ClubMac External DVD Kit $39

THE CLUBMAC PACKAGE: ClubMac CD-ROM & CD Recorders are thoroughly tested. CD-ROM & CD Recorders include a 30-Day Money Back Guarantee, Charismac CD AutoCache utility software (CDROM only), user's guide, 25/50-pin SCSI cable, terminator, and power cord.

SUPERDISK USB

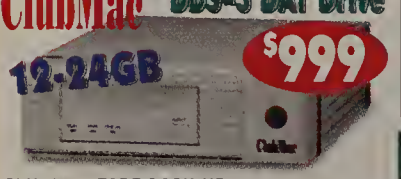
$149.99

- 120 MB Capacity
- Floppy Compatible
- For Apple® Imac's
- USB Interface

Imation Super Disk USB Drive $149.99

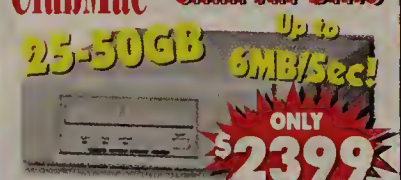
TAPE BACK-UP

ClubMac® DDS-3 DAT Drive 12-24GB $999



CLUBMAC TAPE BACK-UP
4-8GB DDS-2 DAT Drive w/ Retrospect 4.1 ..... $729
12-24GB DDS-3 DAT Drive w/ Retrospect 4.1 ..... $999
20-40GB DLT Drive w/ Retrospect 4.1 ..... $2699
35-70GB DLT Drive w/ Retrospect 4.1 ..... $4999

ClubMac® 8mm AIT Drive 25-50GB Up to 6MB/Sec! ONLY $2399



CLUBMAC AIT DRIVE
25-50GB 8mm AIT Drive $2399
25-50GB 8mm AIT w/ Fast & Wide Cord $2629

Zip Drive Solutions

ZIP USB $149.95 100MB

IOMEGA ZIP DRIVES
Zip 100MB Drive w/Tools on CD $119.95
Zip USB 100MB External $149
Zip 250MB Drive External $199.95

Jaz Drive Solutions

2.0GB NEW LOW PRICE

ONLY $349.95

IOMEGA JAZ DRIVES
Jaz 2GB Drive w/Tools on CD $349
ClubMac Jaz 2GB Drive w/Tools on CD ... $349
Jaz 2GB Drive Internal - all PowerMacs $349

IOMEGA MEDIA

ZIP Media as low as $9.95

as low as $84.95 For JAZ media

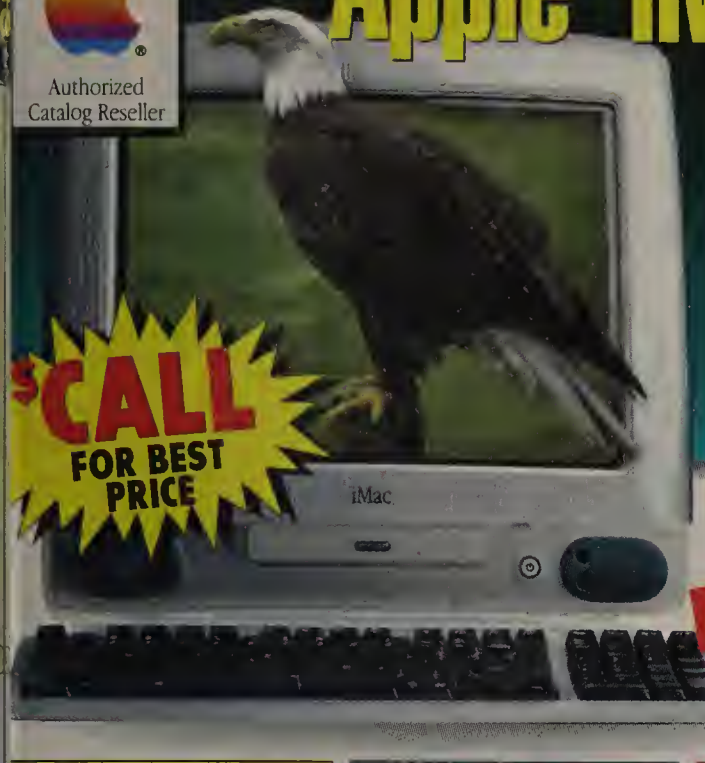
Format	Part#	Qty 1-2	Qty 3-6	Qty 7-9	Qty 10+
ZIP 100MB	1040 1006	$19.95	$15.95	$13.95	$9.95
ZIP 250MB	1040 1097	$24.95	$17.95	$16.95	CALL
Format	**Part#**	**Size**	**Qty 1-2**	**Qty 3-5**	**Qty 6+**
JAZ 1GB	1040 1015	1.0 GB	$99.95	$89.95	$84.95
JAZ 2GB	1040 1074	2.0 GB	$124.95	$99.95	CALL

CALL 1-800-217-9208 FOR A FREE CATALOG

WARRANTIES: All items manufactured by ClubMac are returned to ClubMac for warranty repair. All other items carry manufacturer's warranty MONEY BACK GUARANTEE: All products manufactured by ClubMac carry a 30 day money back guarantee. ClubMac extends all other manufacturers' return policies to its customers. Non-ClubMac products carry 30 day money back guarantee when specified RETURNS: Call for RMA number. Any product that is returned WITHOUT an RMA number will be refused ALL PRODUCT INFORMATION AND PRICES ARE SUBJECT TO CHANGE WITHOUT NOTICE. NOT RESPONSIBLE FOR TYPOGRAPHICAL ERRORS

Authorized Catalog Reseller

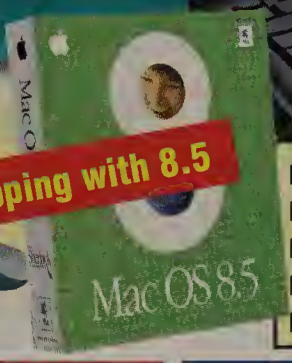
Apple® iMac™



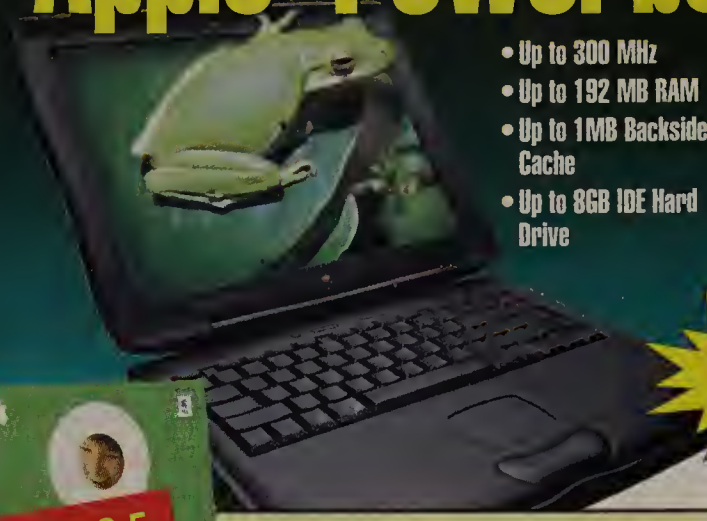
- 233MHz G3 Processor
- 32MB SDRAM
- 4GB Hard Drive
- 24x CD-ROM
- 512K Backside Level 2 Cache
- 56K Modem
- 6MB SGRAM
- (OS 8.5)

$CALL FOR BEST PRICE

Now Shipping with 8.5



Apple® Powerbook™ G3



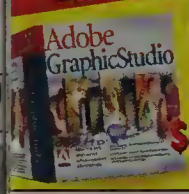
- Up to 300 MHz
- Up to 192 MB RAM
- Up to 1MB Backside Cache
- Up to 8GB IDE Hard Drive
- 2Dx CD-RDM or DVD-RDM
- 2MB or 4MB VRAM
- Up to 14.1" Active Matrix Display
- Ships with Mac OS 8.5

$CALL FOR BEST PRICE

PowerBook G3 233MHz 12.1" TFT 32MB RAM, 2GB HD, 20X CD, 56K,	$CALL
PowerBook G3 233MHz 14.1" TFT 32MB RAM, 2GB HD, 20X CD, 56K	$CALL
PowerBook G3 266MHz 14.1" TFT 64MB RAM, 4GB HD, 20X CD	$CALL
PowerBook G3 300MHz 14.1" TFT 64MB RAM, 8GB HD, 20X CD	$CALL
PowerBook G3 300MHz 14.1" TFT 64MB RAM, 8GB HD, DVD-ROM	$CALL

Graphic Studio

INCLUDES: Photoshop 5.0, Illustrator 8.0, Pagemaker 6.5



A030 1216

$949.95

SYMANTEC. Norton Utilities 4.0

Upgrade for Only $49.95

S219 1109

Stuffit Deluxe 5.0

As low as $29.95

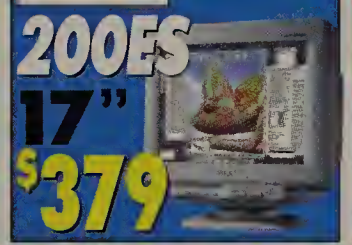
A290

*Price After $50 Mail-in rebate for previous owners

Aladdin Systems

SONY. 200ES 17"

S106 1048



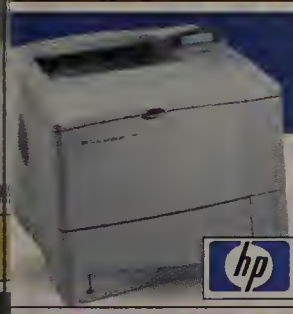
$379

Apple LaserWriter 8500

$1449

A107 1271

HP LASERJET 4000N

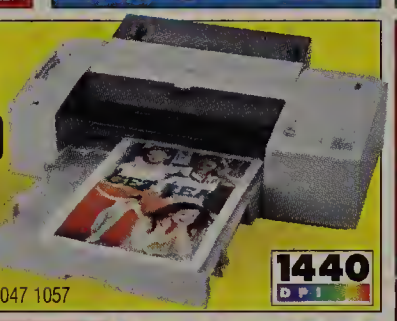


H047 1099

HEWLETT PACKARD

$1448.95

EPSON Stylus 3000



$1299

1440 DPI

E047 1057

PowerMac G3 Desktop w/Microsoft Office 98

- 266MHz G3 Processor
- 64MB SDRAM
- 4GB Hard Drive
- 2MB VRAM
- 56K Modem
- 24X CD RDM

As low as $38.68 per month

Mac OS 8.5 included

$CALL FOR BEST PRICE

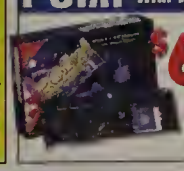
CRESCENDO G3 ACCELERATOR

320 1016

300 MHz!

ONLY $799

Orange Micro inc. PCfx! 200MHz/32MB with Windows 98



$639*

*Price After $40 Manufacturers Mail-in rebate

SONY. FD91

$999

*Price After $50 Mail-in rebate

Mactell Vision3D Pro II Lite 8MB

M550 1028

mactell

$289.99

MICROTEK ScanMaker V310

$49*

After $30 Mail-in Rebate M150 1045

MONITORS

SONY

- Multiscan 100ES 15", 1280x1024, .25mm — $199
- Multiscan 100GS 15", 1280x1024, .25mm — $279
- Multiscan 200ES 17", 1280x1024, .25mm — $379
- Multiscan 220GS 15", 1280x1024, .25mm — $449
- Multiscan 420GS 20", 1600x1200, .25mm — $649
- Multiscan 400PS 19", 1600x1200, .25mm — $749
- Multiscan 520GS 21", 1600x1200, .25mm — $1049
- Multiscan 500PS 21", 1600x1200, .25mm — $1199

APPLE

- Apple ColorSync 17" — $699

HITACHI

- CM6215 17", 15.9 viewable 1024X768 — $399
- CM7515 19", 1600x1200 — $699
- SuperScan MC801HR 21", 1600x1280 — $1249

VIEWSONIC

- G771 17", 11280x1024, .25 dot pitch — $299
- G775, 17" 1280x1024, .25 AG — $439
- G790, 19" 1600x1200, .25 dot pitch — $559
- P813, 21" 1600x1200, .28 dot pitch — $1149
- G815, 21" 1800x1440, .25 dot pitch — $1249

GRAPHIC CARDS

ATI

- Rexus GA™ 16M8 2D & 3D Pro PCI — $519.00
- Xclaim VR™ 4M8 w/TV free tuner card — $244.95
- Xclaim 3D 8M8 — $159.00

MACTELL

- Pro II Lite 8M8 — $289.99
- Vision 3D 4M8 PCI Video Card — $129.00

GRAPHIC CARDS CON'T

IXMICRO

- Mac Rocket 2D/3D w/Video Out — $209
- Pro Rez 2D/3D 128 bit 8M8 PCI — $299
- Ultimate Rez 2D/3D 8MB PCI — $499
- Ultimate Rez 2D/3D 8MB PCI (Promo) — $199*

*with purchase of CPU, monitor, or any Adobe product

PRINTERS

EPSON

- Stylus Color 850 *1440 DPI* — $349
- Stylus Color 800 *1440 DPI* — $229
- Stylus Color Photo 700 *6 COLOR* — $249
- Stylus Color 3000 *17"x 22" 1440 DPI* — $1299

HEWLETT PACKARD

- HP LaserJet 6MP — $878
- HP LaserJet 4000N — $1449

ACCELERATORS

MACTELL

- G3 233MHz/117/512K Cache — $389

NEWER TECHNOLOGY

- MAXPowr G3 250/125/512K — $399
- MAXPowr G3 210/105/512K 71/8100 — $549
- MAXPowr G3 240/160/512K 6100 — $549

SONNET

- Crescendo G3 220-233MHz/512K 6100,7100,8100 — $399
- Crescendo G3 240-266MHz/1M8 6100,7100,8100 — $599
- Crescendo G3 293-300MHz/1M8 6100,7100,8100 — $799

VIMAGE

- Vpower G3 233MHz/P8 1400 — $499
- Vpower G3 240MHz/Performa 54/6400 — $499

XLR8

- Mach Speed G3Z 300 Mhz/512K — $599

SOFTWARE

APPLE

- Mac OS 8.5 — $85.95
- Mac OS 8.5 10 User — $819.95

ADOBE

- Photoshop 5.0 Upgrade — $179.95
- Illustrator 8.0 Upgrade — $118.95

CONNECTIX

- Virtual PC 2.1 w/Win98 — $138.95*

*Madden Football LE, Need for Speed SE, PGA Tour 96 FREE w/VPC Purchase. While supplies last.

DR. SOLOMON'S

- Virex 5.9 — $59.95

MICROSOFT

- Office 98 Upgrade — $298.95

QUARK

- QuarkXPress 4.0 — $698.95

SCANNERS

AGFA

- Agfa SnapScan 1236 Artline, 36 bit, — $299
- Agfa Arcus T1200, 36 bit twin plate scanner — $699

UMAX

- UMAX Astra 1220s, 36 bit. — $149¥
- UMAX Astra 1220U, 36 bit US8 scanner — $129*
- UMAX Powertook II w/trans. adapter — $895†

MICROTEK

- Microtek Scanmaker 4, Dual Plattorm, 36 bit — $699
- Microtek Scanmaker X6, 36 bit — $149*
- Microtek Scanmaker V310, 30bit — $49*

*After $20 Mail-in Rebate ¥After $30 Mail-in Rebate while supplies last †After $200 Mail-in Rebate while supplies last

MODEMS

GLOBAL VILLAGE MODEMS

- Teleport V.90 56K Fax/Modem — $138.95

U.S. ROBOTICS MODEMS

- 56k V.90 FAX/Modem External — $149.95

LINKMATES

- 56k V.90 PCMCIA FAX/Modem — $69.99

MEMORY UPGRADES

72pin SIMMs

8MB	$25		
16MB	$49	32MB	$99

168 pin DIMMs

16MB	$49	32MB	$89
64MB	$189	128MB	$359

PowerMac G3 DIMMs

64MB	$129	32MB	$65
		128MB	$255

PowerBook G3

		125MB	$549
16MB	$65	32MB	$75
64MB	$129	128MB	$245

iMac

16MB	$65	32MB	$75
64MB	$129	128MB	$245

Memory prices subject to change. Please call for current prices.

NOVUS VISA MasterCard NO SURCHARGE

SOURCE CODE 69039

ClubMac®

ORDER TODAY! 24 HOURS A DAY 7 DAYS A WEEK

1-800-260-8549

Order On-line @ http://www.clubmac.com

Sales & Customer Service
4 Hours a Day, 7 Days a Week....(800) 260-8549

Inquiries & International Sales
M - F 5am - 9pm PST.....(949) 768-8130
24-Hour Fax.....(949) 768-9354

Corporate/Educational Sales
M - F 5am - 5pm PST.....(800) 258-2621

Technical Support
M - F 5am - 9pm PST.....(800) 854-6227

E-Mail: ClubMac Sales.....cmsales@clubmac.com
Customer Service..custsvc@clubmac.com
Technical Support..techsup@clubmac.com
Mail: ClubMac.....7 Hammond, Irvine, CA 92618

The Mac Zone®

Since 1986

SHOP ONLINE zones.com™

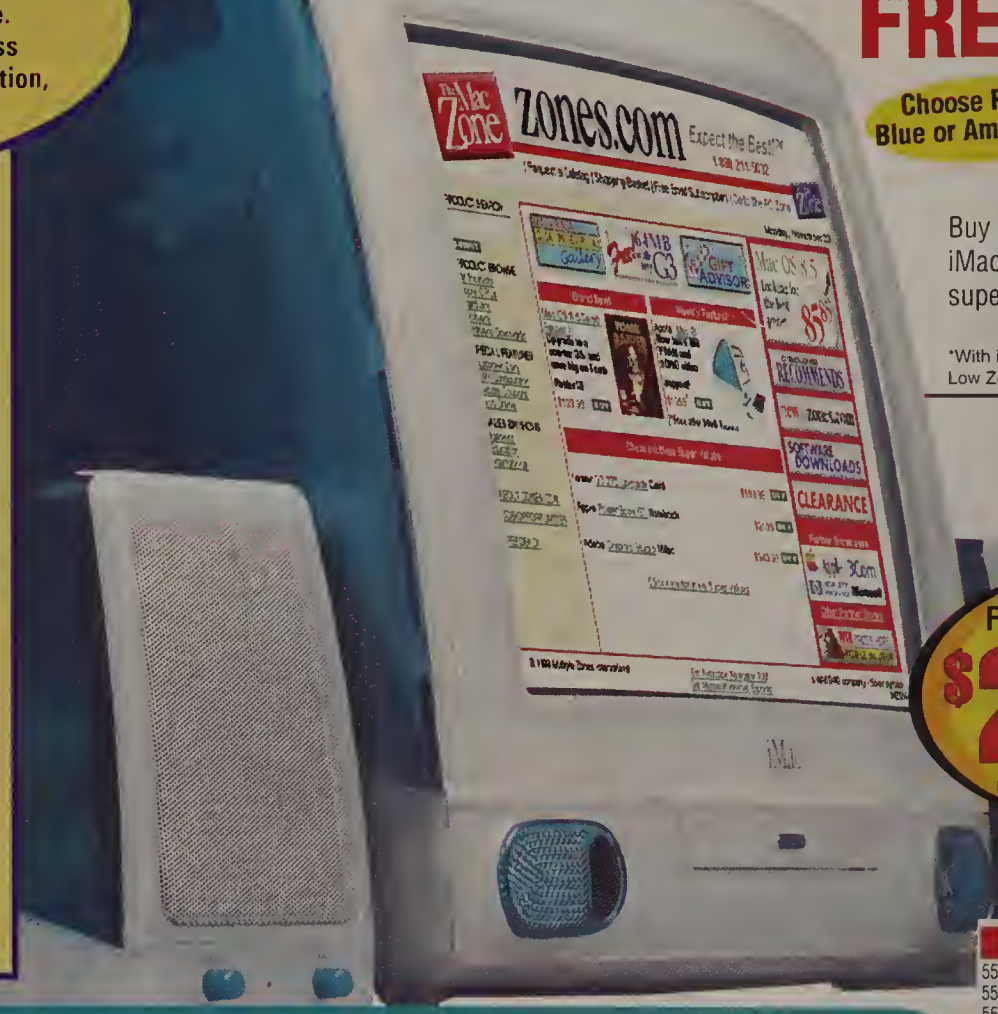
Authorized Catalog Reseller

Think iMac in Stereo!

GUARANTEED LOW PRICES!

Computer prices change all the time. If you find any item advertised for less in a current national catalog or publication, we'll match their in-stock price. Call for complete details.

- ✔ *Shop and Order Online*
- ✔ *Order 24 hours a day, 7 days a week*
- ✔ *Serving Mac enthusiasts since 1986*
- ✔ *Publicly traded NASDAQ company: MZON*
- ✔ *Complete Mac product selection – call for products not listed!*
- ✔ *Affordable leasing options*
- ✔ *Tech Support and Customer Service*
- ✔ *100% Apple "Learn and Earn" Gold certified sales staff!*



Upgrade to superior sound FREE!*

Choose Red, Blue or Amber!

Buy an iMac from The Mac Zone and get these super-cool **CoZo iMac speakers!**

A $94.98 VALUE!

*With iMac purchase after $50 Mac Zone mail-in rebate. Low Zone price: $1349. While supplies last!

233MHz G3 processor, 4.0GB Hard Drive, 32MB SDRAM, 24X CD-ROM, 56K Modem, 10/100 Base-T Ethernet, 15" Monitor (13.8" viewable)

Finance for ONLY $29.98 per month Call for details!

ONLY $1299 #07983

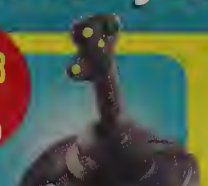
Get connected with USB products for your new iMac!

ONLY $99.98 #16630

AsanteTalk 10T to Localtalk Cable

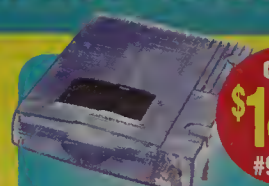
ONLY $149.99 #12196

Imation USB Superdisk



ONLY $39.98 #101329

Ares USB Joystick



ONLY $149.95 #95251

USB Zip Drive

#12237 Zip Media (6 pk) . . $79.95

ONLY $129.98* #97153

Microtek ScanMaker X6 USB

ONLY $249.98 #31720 New Low Price!

Epson Stylus 740

ONLY $39.98 #31906

iBall USB Trackball

ONLY $249.98 #60288

HP 697c with USB

*After $20 Mfr. Rebate. Low Zone price $149.98. Good through 1/31/99.

#31901	Macally iMouse USB Mouse	$24.98
#31933	Macally iKey USB Keyboard	$39.98
#77949	Entrega USB 4 Port Hub	$79.98
#78043	Entrega USB 7 Port Hub	$129.98
#60201	HP 694c Printer with USB Cable Kit	$269.98
#95406	La Cie 2GB External Drive	$249.98
#35295	La Cie 4.3GB External Drive	$299.98
#35294	La Cie 6.4GB External Drive	$349.98

NEW! ONLY $94.98 Each

CoZo "iMac" Speakers

- AC Powered!
- Works with any Mac computer!
- GREAT sound!

#101373	CoZo Speakers (Blue)	$94.98
#101374	CoZo Speakers (Red)	$94.98
#101375	CoZo Speakers (Amber)	$94.98

Business Software

55871	MS Office 98-Mac	$449.9
55870	MS Office 98 Upgrade	$259.9
55872	MS Office 98 Upgrade Gold Edition Mac	$359.9
55873	MS Office 98-Gold Edition Mac	$539.9
08329	Appleworks	$87.9
55868	MS Word 98 Upgrd - Mac	$134.9
06231	Act! 2.8 f/Mac	$149.9
80582	Now UpToDate/Contact,Pblshr,Synze 3.65	$88.9
03972	Corel WordPerfect 3.5.1	$159.9

Utilities

87067	Micromat TechTool Pro 2.11	$94.9
20634	Connectix Virtual PC 2.1 98 *After $30 Upgrade Rebate. Low Zone Price $168.98.	$138.98
02077	Virex 5.9	$59.9
25006	Insignia Softwindows 98	$148.9
41956	StuffIt Deluxe 5.0 *After $50 Mfr Mail-in rebate for upgraders.	$24.9
00555	Hard Disk ToolKit 2.5	$128.9
32550	Connectix Triple Pack: includes RAM Doubler 8, Speed Doubler 8, Surf Express Deluxe	$84.9
32558	Retrospect 4.1	$149.9
73702	RealPC	$44.9
91300	Conflict Catcher 8	$72.9
00642	PowerPrint 4.0	$93.9
84048	RAM Doubler 8	$45.9
00116	Norton AntiVirus 5.0 *After $40 Mfr Mail-in rebate for upgraders.	$23.98

Games/Education

Call for other titles!

74149	ShangHai Dynasty	$39.9
72741	Carmaggedon	$29.9
41484	Tomb Raider 2	$48.9
34779	Myth 2: SoulBlighter	$49.9
82303	WarCraft/Battlechest	$29.9
82936	Eric's Ultimate Solitaire	$38.9
72734	FA 18-Hornet	$44.9
74846	Civilization 2	$28.9
53467	Jack Nicholas 4	$44.9
74847	Quake	$27.9
74166	Riven: The Sequel to Myst	$39.9
07427	Extreme Mac 12-Pack	$39.9

We're open 24 hours a day 7 days a week

NO SURCHARGE ON CREDIT CARDS

Corporate bids welcome! Fax to 1-800-684-8080

1-800-436-0606 www.zones.com

Source Code **MW903**

A NASDAQ® COMPANY Ticker Symbol: MZO

different.

Newer Technology BookEndz docking station

$199.98 value!

Ask for #102901

*With any PowerBook G3 purchase. Price after $80 Mac Zone instant rebate, $100 Mac Zone mail-in rebate and $20 Mfr. mail-in rebate. Low Zone price of $199.98. While supplies last!

Apple® PowerBook® G3 Series

Processor	RAM	HD	Display	Item #	ONLY
G3/233	32MB	2.0GB	12.1" TFT	#07943	$1999
G3/233	32MB	2.0GB	14.1" TFT	#19056	$2499
G3/266	64MB	4.0GB	14.1" TFT	#19057	$2999
G3/300	64MB	8.0GB	14.1" TFT	#07968	$3999
G3/300	64MB	8.0GB	14.1" TFT	#19058	$4399

Apple® Power Macintosh® G3/266

ONLY $1799 #07978

- Microsoft Office 98 pre-installed
- 32MB MORE memory than base G3 model – 64MB TOTAL!
- 56K modem built-in for quick internet access

$450 value!

Mac Zone BestSellers!

Norton AntiVirus 5.0 #00116 *After $40 upgrade rebate. $23.98*

Norton Utilities 4.0 #04890 *After $50 upgrade rebate. $44.98*

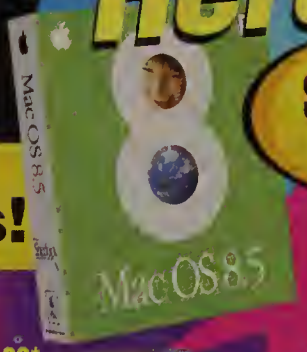
NEW StuffIt Deluxe 5.0 #41956 *After $50 upgrade rebate. $24.98*

Microsoft Office 98 Upgrade #55870 $259.98

QuarkXPress 4.0 #95320 $689.98

Adobe Illustrator 8.0 Upgrade #88205 $118.98

Get YOUR OS 8.5 Here!



ONLY $85.85 #41970

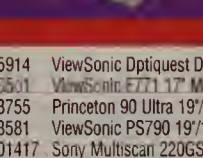
FREE! 8.5 Sherlock T-shirt with purchase $2.98 shipping & handling

Connectix Virtual PC 2.1 98 #20634 *After $30 upgrade rebate. $138.98*

NEW Myth II: SoulBlighter #34779 $49.98

Global Village 56K Modem #60339 $129.98

Hitachi 19" MC7515 #76535 $599.98



HP LaserJet 6MP Printer #82666 $898.98

If you don't see it listed, CALL US!

251	Mavis Beacon Teaches Typing 9.0	$36.98
335	Family Tree Maker Deluxe II	$79.98
710	Encyclopedia Britannica 1999 CD	$59.98
984	Reunion 5.0: Family Tree	$99.98
434	Complete National Geographic: 109 Years	$169.98

Internet

551	Dreamweaver 2 Upgrade & Fireworks 3undle	$229.98
999	Dreamweaver 2 Full Version & Fireworks 3undle	$389.98
486	Macromedia Dreamweaver 2	$298.98
546	Adobe ImageReady	$199.98
182	Adobe ImageStyler	$128.98
032	Adobe PageMill 3.0 Upgrade	$48.98
916	GoLive CyberStudio 3.1 Professional Edition	$289.98
320	Microsoft FrontPage	$139.98

Graphics

320	QuarkXPress 4.0	$689.98
205	Adobe Illustrator 8.0 Upgrade	$118.98
273	Adobe Graphic Studio	$924.98
068	Adobe Pagemaker 6.5 Upgrade	$118.98
083	Adobe Photoshop 5.0	$598.98
084	Adobe Photoshop 5.0 Upgrade	$178.98
158	Macromedia FreeHand 8 Upgrade	$148.98
007	Macromedia Director 7 Shockwave Internet Studio Upgrade	$489.98
930	Adobe Type Manager Deluxe 4.0	$64.98
657	PANTONE Color Survival Kit	$154.98
981	Metacreations Painter 5.5 Web Edition Upgr from 5.0	$79.00
682	Kai's SuperGoo	$44.98
246	Kai's Power Tools 5.0	$124.98
498	Nova Art Explosion 250,000	$99.98
541	Extensis PhotoFrame Vol I & II	$198.98
905	Bryce 3D 3.0	$179.98
815	Metacreations Infini-D 4.5	$538.98
674	Metacreations Infini-D 4.5 Upgrade from 4.0	$99.00
289	Metacreations Poser 3.0	$179.98
241	PANTONE ColorSuite for Graphics	$229.98

Digital Cameras

282	Kodak DC220 Digital 2x Zoom Camera	$699.98
283	Kodak DC260 Digital Camera	$899.98
250	Sony FD71 Mavica Digital 10x Zoom Digital Camera w/ FREE 10pk of Floppy Diskettes	$699.98
849	Sony FD81 Mavica Digital 3x Dptical Zoom Digital Camera w/ FREE 10pk of Floppy Diskettes	$799.98
90535	Nikon Coolpix 900S Digital Camera	$749.98
96864	Olympus D-620L Digital Camera	$1199.00
53936	Olympus D-500L Digital Camera	$699.98
50570	Olympus D-320L Digital Camera	$399.98
03588	Epson PhotoPC 700 Digital Camera	$599.98

Fixed HD/CD Drives

70441	La Cie 4.3G8 Internal SCSI 5400RPM	$279.98
70448	La Cie 6.4G8 External SCSI 5400RPM	$479.98
70444	La Cie 9.1G8 Internal SCSI 5400RPM	$539.98
38221	La Cie DVD-RAM External SCSI Drive	$799.98
95396	La Cie 4x8 External SCSI CD-Recorder	$429.98
60513	La Cie 4x6x2 External SCSI CDRW w/Toast	$529.98
59776	Fuji CD-R 10 pack with $20 rebate	$29.98
21258	Fuji CD-R 25 pack with jewel cases	$39.98

Zip Drives and Media

51752	Zip Internal ATAPI w/5.25 mounting	$99.95
73832	Zip Internal SCSI w/5.25 mounting	$119.95
55181	Zip External SCSI Remanufactured*	$99.95
12220	Zip External SCSI	$119.95
52581	ZipPlus External SCSI & Parallel	$169.95
32251	Zip large carrying case	$29.95
88195	Fuji Zip Color 5pk with $10 rebate	$59.98
37185	Fuji Zip Color 10pk with $10 rebate	$99.98
54009	Fuji Zip Gray 20pk w/ 4 Free Disks by mail	$198.98

Removable HD and Media

101701	Jaz 1GB SCSI Int Drive Remanufactured*	$199.95
101702	Jaz 1GB SCSI Ext Drive Remanufactured*	$199.95
95233	Jaz 2G8 SCSI Int Drive	$349.95
95234	Jaz 2G8 SCSI Ext Drive	$349.95
43360	Jaz Card PCMCIA Fax SCSI 2	$124.95
75663	Jaz 1G8 Cartridge 3 Pack	$269.85
73836	Jaz 2G8 Cartridge 3 Pack	$299.85

Modems

13079	Performantz 56k PC Card Fax/mod Mac	$119.98
60385	SupraExpress 56e D/F For Mac *Price after $20 mail-in rebate. Exp. 1/31/99	$94.98*
60339	Teleport 56k v.90 ext Fax/Modem for Mac	$129.98
60313	3Com/USR 56k v.90 D/F for Mac † Price after $50 mail-in rebate. Exp. 1/31/99	$97.98†
36229	Viking 56k v.90 external fax/modem	$99.98
04580	Global Village 56k v.90 PC Card	$169.98

Input

75112	Macally Two Button Mouse	$29.98
87464	Kensington Mouse in a Box	$39.98
03727	Kensington Keyboard in a 8ox	$49.98
89379	Kensington Mouse 1.0	$59.98
93628	Kensington Thinking Mouse	$69.98
78420	Kensington Drbit	$69.98
87483	Kensington Turbo Mouse 5.0	$99.98
85553	Addesso Touch Extended Keyboard	$39.98
75111	Macally MK-8000 Keyboard with Touch Pad	$72.98
85594	Addesso Tru-Form Ergo. Keyboard w/Touchpad	$89.98
75109	Macally Port Xpander	$58.98

Powerbook Essentials

07157	Targus Leather Notebooks	$99.98
42245	Kensington Saddle Bag for PB G3 (blk)	$89.98
07159	VST internal Zip drive	$239.98
06421	Kensington Security Cable	$39.98
57714	HP 340 cbi portable Inkjet Printer	$329.98
43690	Konexx Mobile Konnector	$119.98
07159	VST G3 Zip Drive	$239.98
82633	PB Universal SCSI Adapter	$31.98
81849	DAVE Mac 2.1	$119.98
00642	PowerPrint 4.5	$93.98
03765	Road Rocket	$289.98
55677	IREZ Capsure zoomed video PCMCIA	$109.98
55678	KritterKam	$239.98
44546	VST auto adapter	$78.98

Monitors

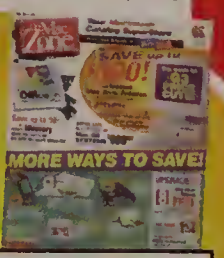
77015	Apple Studio Display 15" flat panel	$1,299.00
76514	ViewSonic GS771 17" Monitors (16" View)	$359.98
76513	Sony Multiscan 200ES 17" Monitors	$359.98
76517	Sony Multiscan 100ES 15" Monitor	$229.98
75914	ViewSonic Dptiquest D71 17" Monitor	$269.98
79501	ViewSonic E771 17" Monitor	$349.98
93755	Princeton 90 Ultra 19"/18" Monitor	$479.98
03581	ViewSonic PS790 19"/18 .25" SM 1600	$729.98
101417	Sony Multiscan 220GS 17" Monitor	$489.98
77049	AppleVision 720 17" Display	$499.98
75956	Dptiquest D51 15" Monitor	$169.98
78611	ViewSonic Dptiquest D53 15" Monitor	$174.98
46794	Sony Multiscan 500PS 21" Monitors	$1,199.00
46793	Sony Multiscan 400PS 19" Monitors	$779.98
84147	ViewSonic G810 21" Color Monitor	$949.98

Printers

31720	Epson Stylus 740	$249.98
80668	Epson Stylus 800	$249.98
00575	Epson Stylus Photo 700	$249.98
00583	Epson Stylus EX	$499.98
40920	Epson Stylus 1520	$499.98
57715	HP Deskjet 1120se Printer	$598.98
82666	HP Laserjet 6MP Printer	$898.98
53213	HP Laserjet 4000N Printer	$1,449.00
57728	HP LaserJet 5000N Printer	$2,059.00
57736	HP LaserJet 8000N Printer	$2,639.00
76646	Tektronix Phaser 740 Color Printer	$1,995.00
74757	Apple LaserWriter 8500	$1,499.00
52851	Costar Labelwriter Turbo	$249.98

Call for your FREE CATALOG!

All the latest Macintosh products at discount prices!



The Mac Zone

Expect the Best!™

Low Prices • Selection • Expertise

If for any reason you are not satisfied, please call our No Excuses Hotline: 1-800-258-0270.

1-800-436-0606 www.zones.com

edit cards are not charged until the order is shipped. Most products ship the same day (barring system failure, etc.). Shipping options clude Ground, 2nd Day and Overnight delivery. Freight is based on average product weight. Handling extra. Insurance available. Special ders may require special shipping and handling charges. Call for international shipping rates. Prices and product availability subject to ange without notice. Specials and promotions may be limited to stock on hand. Not responsible for typographical errors.

1999 Copyright Multiple Zones International Inc. All rights reserved. Unauthorized duplication is a violation of applicable ws. Apple®, the Apple logo, Macintosh® and Power8ook® are registered trademarks of the Apple Computer, Inc.

Free UPS Ground Shipping When You Order On-Line. Surf to: http:/www.blol.com/

Special Of The Month

Burn Baby Burn

Fastest CDR Drive On The Planet!
Plextor 8x-Write 20-x Read
$439

Burns at 1x/2x/4x/6x/8x Speeds
Burn A 650MB CD in 8 Minutes!

Panasonic iMaccessories adaptec Seagate Initio

BottomlinE DISTRIBUTION

mactell RAILGUN from Bottomline XLR8 POWERLOGIX Vimage Quantum

One The Web Or On The Phone, Your One Source For All Your Macintosh Needs!

Order from our secure server online at:
http://www.blol.com/ Mac On! **1-800-990-5697**

Get More RAM!

DIMMs 168-Pin 5.0/5.5 volt
PCI PowerMac, UMAX, PowerCC
16MB 168-Pin DIMM 60ns . .$49
32MB 168-Pin DIMM 60ns . .$89
64MB 168-Pin DIMM 60ns .$139
PowerLogix 1MB Cache . . .$139
1MB VRAM DIMM $26

Apple G3 RAM SDRAM
Exclusively for the new G3 Macs
32MB 100Mhz SDRAM $69
64MB 100Mhz SDRAM $95
128MB 100Mhz SDRAM . . .$189
256MB 100Mhz SDRAM . . .$559
4MB VRAM Upgrade $39

SIMMs 72-Pin
16MB SIMM 60ns $39
32MB SIMM 60ns $85
256k L2 Cache SIMM $9.99
1MB L2 Cache 61/71/8100 .$149

DIMMs 168-Pin 3.3 volt
Starmax, Apple 6500, 4400
32MB 168-Pin DIMM 60ns . .$89
64MB 168-Pin DIMM 60ns .$139
Cache for 20th/6500/Starmax
512k L2 Cache DIMM $89
1MB L2 Cache DIMM $179

Digital Camera Memory:
16MB Compact Flash w/Adap .$89
16MB Compact Flash w/Adap $149
8MB Smart Media $35.99

All RAM sold by BottomLine comes with a hassle free lifetime warranty! prices listed as of 12/29/98

Media 100qx Professional Digital Video Capture Card $1799
*Component System $3698

RAILGUN from Bottomline $499
G3 275/1MB
Comes with 1MB backside cache at a 1.5/1 ratio (183Mhz)
IN STOCK!

MICROTEK UMAX
It's A Great Time To Buy A Scanner! Check out these after-rebate Prices!
UMAX 610s 300x600 .....$95*
UMAX 1220U USB 600x1200 .....$129*
UMAX 1220s 600/1200.....$187*
UMAX 1220s w/PhotoDLX.....$229*
Microtek V310 300/600 .....$58.99*
Microtek C3 USB $49.99*
*After Mail-In Rebate
http://www.blol.com/rebate/

Norton Utilities v4.0 $98.99
Now Compatable With HFS+

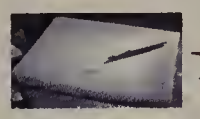
iomega $359

Iomega Jaz 2GB External Removable Drive includes cart.
Iomega Zip 100 External.....$119.99
Iomega Zip 100 Internal w/Cart....$119.99
Iomega Zip 250MB External $189.99
Iomega Jaz 2GB Internal $328.99
Iomega Zip BUZ Video Capture $289.99

OS 8.5 is Here

The MUST Have Upgrade!
$87.95

CD-ROM PowerPC Only



$299
Wacom 6x8 Intuos Tablet
Wacom Intuos 4x5 ADB $164.95
Wacom Intuos 9x12 ADB $429.99
Wacom Intuos 12x12 Serial $429.99
Refurbished 1-year ArtZ II 6x8 .....$189.99
All Intuos Tablets Include Painter Classic

XLR8
G3 Processor Card Upgrade
400Mhz
Fastest Upgrade On The Planet! *In STOCK!*
$1489
G3 220Mhz 2:1 S12k Cache $319.99
G3 233Mhz 3:2 1MB Cache $359.99
G3 300Mhz 3:2 1MB Cache $629.99
ZIF Card FOr G3 Mac 300/1MB $799.99

64MB

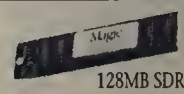
64MB 168-Pin DIMMs FPM/EDO
Lifetime Warranty From Bottom Line
$139.99 *Bottom Line's Low Price*
Price As of 12/29/98 PLease Call Or Check Our WebSite For Current Price

Teac CDR Drives

Teac 6x-Write 20x-Read $479
External $579.99

Teac 4x Write/12x Read.....$279.99
Teac External 4x/12x $379.99
CDR Media 4x/6x rated.....From $1.19
Adaptec Toast 3.5.5/DirectCD Bundle..$69

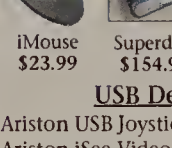
Bottom Line Now Carries Vimage
Vimage G3 Upgrade Cards!
Vpower G3 233/512k For PowerBook 1400 Series
6400/S400 G3 240Mhz S12k Cache
$495.99
$489



128MB

128MB SDRAM DIMMs
For G3 Apple© PowerMac Systems
Lifetime Warranty From Bottom Line
Bottom Line's Low Price $189
Price As of 12/29/98 PLease Call Or Check Our WebSite For Current Price

The Bottom Line iMac Store



The New iMac From Apple Computer
$1299 value

iMouse $23.99

Superdisk $154.99

Keyspan PCI $79.99

USB Devices:
Ariston USB Joystick $49.99
Ariston iSee Video Camera.....$127
Ariston iView Video Capture ..$144
imaccessories USB PCI Card $49.99
imaccessories iStick Joystick.....$49
imaccessories SCSI Card $189.99
Microtek USB to SCSI $79.99

Get More RAM!:
iMac 32MB Module $69
iMac 64MB Module $109
iMac 128MB Module $239
iMac 2MB VRAM $12
iMac 4MB VRAM $19

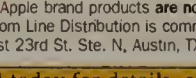
USB Devices:
Agfa 1212U Scanner USB....$129.99
Macally iMouse $23.99
Macally iHub 4-Port USB.....$49.99
Macally iBall USB Trackball..$49.99
Farallon iPrint LocalTalk $109
Ethernet Crossover Cable....$10.99
Epson 1220U USB Scanner $129*
Epson Color 640 Printer.....$199
Epson 740 USB Printer $279
Parallel To USB Cable $37.99
Keyspan PCI USB Card $79.99

UltraSCSI For Your iMac Call Bottom Line For Details!

Your CDR/CDRW Recordable & ReRecordable Drive Headquarters

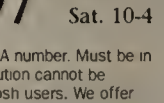
Burn it Baby!

CDR For ALL!
Panasonic



CDR Media:
10-Pack $13.99
25-Pack $32.25
100-Pack..$119
4x/8x Internal! Best Price!
External w/Toast and Cables $319.99!!
Bottom Line's Unbeatable Low Price $229

YAMAHA CDR/CDRW



External Yamaha Brand:
ReRecordable 4x/4x/16x $449
Yamaha Internal:
ReRecordable 4x/4x/16x $359
Magic Yamaha External:
ReRecordable 4x/4x/16x $459

Adaptec Toast/Direct CD..$69.99
Retrospect Express v4.1 ....$24.99
CDR Media From $1.19
CDRW Media $6.99
85/9500 Internal CD-Kit ..$23.97
86/9600/G3 Int. CD-Kit ..$19.79

Digital Cameras

Nikon CoolPix 900s Camera ..$745
Olympus D620L Camera $1199
Olympus D600L Camera $859
Olympus D220L w/LCD $289
Agfa ePhoto 307 Camera $239
Agfa ePhoto 780 w/LCD.....$385
Agfa ePhoto 1280 w/LCD.....$599
Kodak DC 260 Camera.....$799
Kodak DC120 w/LCD.....$479

Scanners

UMAX Astra 1220s 600dpi $187*
UMAX PowerLook II $1239.99
Microtek V310 300dpi $49*
Microtek Scanmaker X6 ....$149.99
Microtek Scanmaker 4 36-bit ..$689
Agfa Snapscan 1236s $239.99
Agfa Duoscan T-1200.....$659.99
Agfa Arcus II *Solo*.....$1199
Agfa Duoscan Dual-Mode.....$2499

G3 Processor Card Upgrades

RAILGUN from Bottomline

RailGun G3 250/512k 2:1 .....$389
RailGun G3 275/1MB 2:1 .....$499
RailGun G3 300/150Mhz 1MB ..$599
RailGun G3 400/200Mhz 1MB $999

MAXpowr G3 250/125Mhz 512k ..$382
MAXpowr G3 300/150Mhz 512k ..$559
MAXpowr G3 333/166Mhz 1MB ..$999
MAXpowr G3 400/200Mhz 1MB $1549
NUpowr G3/250 1MB 1400PB $759

POWERLOGIX
The "Little Screamer":
PowerForce G3 220/110Mhz 512k $319
PowerForce G3 300/120Mhz 512k$449
PowerForce G3 300/150Mhz 1MB $579
New ZIF Upgrade For G3 Macs
PowerLogix G3 400Mhz 1MB $1299*

mactell
MacTell G3 300/200 1MB $629.99
MacTell G3 275/1MB 1.5:1.....$499.99

Fast 7200/10,000rpm Hard Drives

SCSI Drives:
Seagate Medalist 4.55GB $246
Seagate Medalist 9.1GB $477
Seagate Barracuda 9.1GB $459
Seagate Barracuda 18.2GB $919
Seagate Cheetah LVD 9.1GB ..$754
IBM Ultrastar 9ES 4.55GB $319
IBM Ultrastar 9ZX 9.1GB $559
Quantum Atlas III 9.1GB.....$497

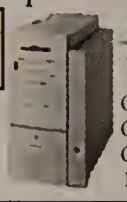
IDE Drives For G3 Macs:
MAXTOR 10.2GB EIDE $295
MAXTOR 17.2GB EIDE $359

SCSI Cards:
Jackhammer Fast/Wide $289
ATTO Express PCI Fast/Wide $269
ATTO Ultra2 PCI LVD $409
Initio w/Conley RAID Softwr $189
Initio Ultra2 SCSI w/RAID $309

New Apple G3 System Pricing!

Desktop & Mini-TowerSystems

Call For Pricing On The New Apple PowerMac Systems!



$2289 G3 MT 300Mhz 64MB RAM/8GB HD/Zip/24x/AV
G3 MT 333/64/8GB/CD/AV ..$2899
G3 MT 300 64/8/24x/Zip/AV $2289
G3 DT 300 64/6GB/24x/Zip..$1899
Need extra RAM/VRAM We Have it!

$1499
DT 266Mhz 32/4GB/24xCD

New Apple G3 PowerBooks Are Here!

Sensational NEW PowerBook Pricing!
Starting At: $2399

233Mhz/512k 32/2GB/20x/14.1"..$2399
266Mhz 64/4GB/20x/14.1" $2899
300Mhz 64/8GB/DVD/14.1" $3899
300Mhz 64/8GB/DVD/14.1" $4299

"New" G3 PowerBook RAM:
16MB Memory Module $79.99
32MB Memory Module $99.99
64MB Memory Module $121.99
128MB Memory Module $219.99

PowerBook Accessories:
Apple PowerBook Floppy Drive $119
Apple G3 AC Power Adapter $78

http://www.blol.com/

Free UPS ground shipping on domestic orders over $100.00, and under 10lbs.

BottomlinE DISTRIBUTION **1-800-990-5697** M-F 9-8 Sat. 10-4

Shipping: **$5, 5 lbs., UPS Ground** Payment: No credit card surcharge. Corporate POs welcome. Tax: Texas residents add 8.25% sales tax. Prices: Items, prices and availability subject to change. Returns: Call for RMA number. Must be in original condition, opened software is non-refundable. All orders subject to a minimum 15% restocking fee. Original shipping is non-refundable. Apple brand products **are not** returnable for credit. Bottom Line Distribution cannot be responsible for errors in typography or photography. Apple specs subject to change. Customer Service:512-485-4602. International Sales: Bottom Line Distribution is committed to the needs of international Macintosh users. We offer discounted rates with DHL. 2 to 3 day delivery to most countries. Dealer inquiries welcome. Language interpreters available. Address: 715 West 23rd St. Ste. N, Austin, TX 78705 Fax: 512-485-4601. Hours: M-F 9-8 I Sat 10-4

Bottom Line Offers Business Leasing on all items we carry (orders over $1000.00). Call today for details, or fill out a lease form online!

Choose 221 at www.macworld.com/getinfo

Free UPS Ground Shipping When You Order On-Line. Surf to: http://www.blol.com/

GO TO OUR WEBSITE FOR:
• EASY & SAFE E-COMMERCE
INSTANT ONLINE ORDER TRACKING
• REGISTER FOR MONTHLY GIVEAWAYS
• DAILY SPECIALS

www.pdisales.com

HIGH PERFORMANCE SPECIALISTS

EASY ONLINE ORDERING

FREE 2ND DAY SHIPPING FOR ALL ONLINE ORDERS!

90 Day Performance Guarantee

ALWAYS CALL FOR THE MOST CURRENT PRICE ON ALL ADVERTISED PRODUCTS. PRICES CHANGE DAILY.

The Difference? It's Speed-Tuning!
Working closely with drive manufacturers to identify and optimize key internal mode settings for the Mac, NT, & PowerRAID our hard drives are calibrated to operate at peak efficiency. We call it Speed-Tuning™ and it works. The proof is in the awards our drives keep winning.

Remember, Apple Hard Drives & SCSI Accelerators Only Carry a One Year Warranty! All ProDirect drives have a Five Year Mfg. Warranty!

The other guys give you a hard drive in a box.
The Speed-Tuning Experts at ProDirect give you...

- ☑ A HARD DRIVE IN A BOX THAT HAS BEEN SPEED-TUNED TO THE EXACT WAY YOU WORK
- ☑ YOUR CHOICE OF SPEED-TUNING
  - ☐ AV RECORDING CALIBRATION
  - ☐ DESKTOP PUBLISHING CALIBRATION
  - ☐ MULTI-PURPOSE CALIBRATION
- ☑ AWARD-WINNING PERFORMANCE
- ☑ TECH SUPPORT FROM PROS WHO KNOW MORE THAN HOW TO PACK BOXES

ProDirect PowerStor Externals
All ProDirect External Hard Drives are Enclosed in our Attractive, High Performance PowerStor Cabinet.
•All Drives Pre-Tested •QUIET High Power Cooling Fan
•Active Terminator
•SystemComplimenting, Stackable Design
•Reliable 110-220 Auto sensing 40 Watt UL, TUV, CV, Approved Power Supply
•System or Daisy Chain Cable

MAXIMIZE YOUR HARD DRIVE WITH THE RIGHT SCSI ACCELERATOR CARD!

Adaptec ATTO

YOUR CHOICE: ULTRA WIDE ACCELERATOR CARD
PowerDomain 2940UW or ATTO Express PCI $199*
UP TO 40 MB/Sec. *WITH ANY DRIVE PURCHASE

Ultra SCSI Dual Channel PCI
PowerDomain UP TO 40 MB/Sec. $425
Dual Channel Express PCI $549

Ultra 2 SCSI LVD PCI
BACKWARDS COMPATIBLE WITH EXISTING SCSI & ULTRA SCSI
PowerDomain 2940 U2W $445
U2 CARD, ALL CABLES, TERMINATION UP TO 80 MB/Sec.
Express PCI LVD $435

TAPE BACKUP

SONY AIT SDX300C 120MB/Min. $2389

SPEEDY TAPE DRIVES IN STOCK TODAY

CAPACITY	MODEL	TRANSFER RATE	SALE
8 GB	STD8000	60 MB/Min.	655
8 GB	Sony 7000	90 MB/Min.	835
24 GB	HP1554 DDS3	120 MB/Min.	1245
24 GB	Sony 9000 DD3	120 MB/Min.	1095
30 GB	DLT 2000XT	150 MB/Min.	1386
40 GB	DLT 4000	180 MB/Min.	1995
70 GB	DLT 7000	600 MB/Min.	4875
144 GB	HP1559 DDS3	120 MB/Min.	3395
200 GB	DLT 4500	180 MB/Min.	3795
280	DLT 4700	180 MB/Min.	5575
560 GB	DLT Stor4114LST	180 MB/Min.	10,485
980GB	DLT Stor7114ST	180 MB/Min.	13,899

RETROSPECT 4.0 MAC OR CHEYENNE WINDOWS (NT) SOFTWARE INCLUDED WITH ALL TAPE DRIVES

MEMORY DEALS

HIGHEST QUALITY APPLE CERTIFIED WITH LIFETIME WARRANTY

	32MB	64MB	128MB
PowerMac G3 SDRAM	$46	$88	$182
PowerMac 168 pin DIMM	$43	$88	$275
PowerBook WallStreet G3	$71	$125	$245

72pin SIMM 16MB-$21 32MB-$42

DVD, CDR & CD
5.2GB DVD $775 NEW! In Stock!
RamDrive
2X ReWritable DVD-RAM Drive. Stores up to 5.2GB/Media.
20X CD Reader. Reads CDRom, CD-R and CDRW!

CD Rom Drives PIONEER
Pioneer 36x CD ROM $129
60ms Access Caddyless Design External

CD Recorders $445
2xCD Re-Writable 4xRecorder 6xReader
Yamaha CRW4260 External with HUGE 2MB Buffer
Yamaha CRW4416 4xCD Re-Writable 4xRecorder 16xReader External with HUGE 2MB Buffer $447
Panasonic CDR 7502 4x 8x Ext. 1MB Buffer $312
CD STOMPER ONLY $25 WITH ANY PURCHASE

FREE TOAST SOFTWARE INCLUDED WITH ALL CDR'S

Quantum ATLAS II

2.2GB $165 (Q3275SC) External: $225
9.1GB Wide $345 (Q39100WSC) External: $435
7200RPM 1024K BUFFER 7.9MS SEEK

Quantum VIKING II

4.5GB U2/Wide $245 (PX34550LW) External: $335
9.1GB U2/Wide $408 (PX39100LW) External: $499
7200RPM 512K BUFFER 8.5MS SEEK

Quantum ATLAS III

9.1GB U2/Wide $457 (AL309100LW) External: $547
7200RPM 1024K BUFFER 7.5MS SEEK

Quantum ATLAS III

18.2GB U2W $795 (AL318200LW) External: $885
7200RPM 1024K BUFFER 7.5MS SEEK

Quantum FIREBALL

1.2GB $115 External: $175
6.4GB $337 External: $387
5400rpm 512k buffer 9.5ms Seek

NEW! **IDE HARD DRIVES**

Quantum
3.2GB FB303200EXA $123
6.4GB FB 306400EXA $163
7.6GB FB37600ELA $184
10.2GB FB310200ELA $239
5400rpm 128k buffer 10ms Seek

DIGITAL VIDEO

NEW FIREWIRE 1394 — FireWire 1394 AND UltraWide SCSI Both on One Card!

Adaptec ULTRA HOT CONNECT 8945
PROFESSIONAL QUALITY DIGITAL VIDEO PLUS ULTRA WIDE SCSI PORT
Plug your FireWire equipped Camera right into your computer to easily capture digital video and stills. NTSC and PAL formats compatible
Ultra Hot Connect 8945 .....$535
(WITH FIREWIRE AND ULTRAWIDE SCSI BOTH ON ONE CARD)

MEDIA 100 QX WITH ADOBE PREMIERE 5.0 MAC $1795* WIN NT $1795*
MEDIA 100 QXC WITH ADOBE PREMIERE 5.0 $3795* SAVE
MEDIA 100 LE $5495*
*WITH DRIVE or PowerRAID PURCHASE

TRUEVISION
TARGA 1000 Mac/Win NT $1645
TARGA 1000 Pro NTSC Mac/NT $2235
TARGA 2000 Mac/Win NT $3435
TARGA 2000 Pro NTSC Mac/NT $3795
Targa 1000 & 2000 also available in PAL format

PINNACLE SYSTEM
Miromotion DC30+ W/ PREMIERE 5.0 MAC $865
Miromotion DV300 W/ PREMIERE LE MAC/WIN $735

Upgrade Your Mac to G3 Power!

newertechnology

MAXPOWER G3 240MHZ	1024K 6100	$545
MAXPOWER G3 240MHZ	1024K 7100-8100	$645
MAXPOWER G3 250MHZ	512K 7300-9600	$396
MAXPOWER G3 333MHZ	1024K/183 7300-9600	$989
MAXPOWER G3 366MHZ	1024K/183 7300-9600	$1289
MAXPOWER G3 400MHZ	1024K/200 G3	$1539

IBM ULTRASTAR ZX

9.1GB Wide $492 (39100W) External: $582
18.2GB Wide $1229 (318200W) External: $1319
10000RPM 1024K BUFFER 6.8MS SEEK

IBM ULTRASTAR

9.1GB Wide $444 (39130W) External: $534
18.2GB U2/Wide $822 (318200LW) External: $912
7200RPM 1024K BUFFER 7.9MS SEEK

NEW 36.4GB U2W $1823 (136400LW) External: $1923
7200RPM 2048K BUFFER 7MS SEEK

IBM ES VALUE! ULTRASTAR ES

4.3GB $228 (DCAS34330) External: $288
4.5GB Narrow/Wide $259 (DDRS34560S/W) Ext: $319 WideExt: $349
7200RPM 512K BUFFER 8.5MS SEEK

IBM UltraStar

7200rpm 4096k buffer 7.9ms Seek
9GB U2W $787
HUGE 4MB BUFFER (DRVS09U) External: $887
THE SetUp for Video CD Mastering, Audio, MultiMedio and all High Transfer Rate Intensive Applications

IBM IDE HARD DRIVES

DESKSTAR GP
10.1GB (DTTA-351010) $215
13.5GB (DTTA-351350) $280
16.8GB (DTTA-351680) $372
5400rpm 512k buffer 9.5ms Seek

DESKSTAR GPX
10.1GB (DTTA-371D1D) $265
14.4GB (DTTA-371440) $372
22.GB (DTTA-3722000) $596
7200rpm 512k buffer 9.5ms Seek

Seagate CHEETAH

MAR March '98
4.5GB Wide $477 (ST34501W) External: $567
9.1GB Wide $645 (ST19101W) External: $735
9.1GB U2/Wide $657 5.2ms Seek (ST39102LW) External: $747
18.2GB U2/Wide $1216 (ST118202LW) External: $1306
10000 RPM 1024K BUFFER 5.9MS SEEK
NEW 36.4GB U2W $2340 (ST136403LW) External: $2440
10000 RPM 1024K BUFFER 5.9MS SEEK

Seagate BARRACUDA

4.3GB Wide $387 (ST34371W) External: $477
9.1GB U2/Wide $477 (ST39173LW) External: $567
18.2GB Wide $883 (ST118273W) External: $973
NEW 36.4GB U2W $1989 (ST118273W) External: $2089
NEW 50.1GB U2W $2995 (ST150176W) External: $3095
7200 RPM 512K BUFFER 7.1MS SEEK

Seagate MEDALIST

4.5GB Narrow/Wide $229 (ST34520N/W) External: $289 Wide Ext.: $319
6.5GB Narrow/Wide $319 (ST36530N/W) External: $379 Wide Ext.: $409
9.1GB Narrow/Wide $396 (ST39140N/W) External: $456 Wide Ext.: $486
7200 RPM 512K BUFFER 8.5MS SEEK

Seagate ELITE

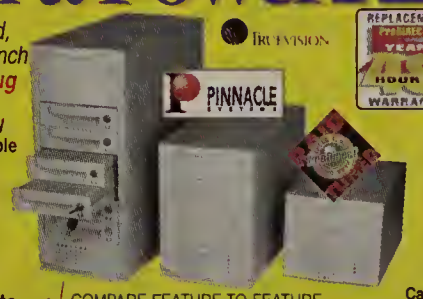
23GB Narrow/Wide $1395 (ST423451N/W) External: $1495 Wide Ext.: $1525
5400 RPM 2048K BUFFER 11MS SEEK
46GB Wide $2377 4096K BUFFER (ST463451W) External: $2462

For Maximum Data Transfer Rates

Plug in a PowerRAID™

All PowerRAIDs are Initialized, Speed Tuned, Tested and Bench Marked To Insure a True Plug and Save Reliability.

- ☑ The Premier Adaptec 2940U2W Ultra2 Wide Accelerator (Available with Dual Channel)
- ☑ Raid-Tuned Hard Drives
- ☑ Raid Center Enclosures With Maximum Duty Power Supply, Teflon Shielded Cables, High Output Cooling
- ☑ Remus Raid Software.
- ☑ All PowerRAID components are covered by a 5 year 48 hour replacement warranty.



☑ COMPARE FEATURE TO FEATURE AND SAVE @ PRODIRECT.

All PowerRAID components are covered by our 5 Year, 48 Hour Replacement Warranty.

☑ PowerRAID is on MEDIA 100's "Recommended Raids" List

Call or visit our website for our complete line of Open System Architecture PowerRAIDs.

Seagate BARRACUDA PowerRAIDs

18GB PowerRAID SB18 FIXED: $1665 LEASE FOR: $74/MO. REMOVABLE: $1850 LEASE FOR: $82/MO.
36GB PowerRAID SB36 FIXED: $2519 LEASE FOR: $108/MO. REMOVABLE: $2719 LEASE FOR: $115/MO.
72GB PowerRAID SB72 FIXED: $4649 LEASE FOR: $144/MO. REMOVABLE: $4995 LEASE FOR: $154/MO.
144GB PowerRAID SB144 FIXED: $8800 LEASE FOR: $245/MO. REMOVABLE: $9620 LEASE FOR: $275/MO.

Seagate CHEETAH PowerRAIDs

18GB PowerRAID SC18 FIXED: $1915 LEASE FOR: $82/MO. REMOVABLE: $2168 LEASE FOR: $90/MO.
36GB PowerRAID SC36 FIXED: $3475 LEASE FOR: $128/MO. REMOVABLE: $3675 LEASE FOR: $135/MO.
72GB PowerRAID SC72 FIXED: $6499 LEASE FOR: $157/MO. REMOVABLE: $6866 LEASE FOR: $177/MO.
144GB PowerRAID SC144 FIXED: $12,862 LEASE FOR: $305/MO. REMOVABLE: $13,588 LEASE FOR: $335/MO.

www.pdisales.com
• Quickly find and order it now on our website! •

ZIP/JAZ

	INTERNAL	IOMEGA EXTERNAL
Zip Drive no cartridge	$119	$115
Zip Plus Drive one cartridge	---	$175
Jaz 1GB Drive one cartridge	$279	$295
Jaz 2GB Drive no cartridge	$359	$349

Media: ZIP: $9.95 | JAZ 1GB: $84.95 | JAZ 2GB: $99.95

Service • Performance • Price • Always™

ProDIRECT means...
- 90 Day Performance Guarantee
- Toll-Free Tech Support
- Same Day Shipping
- No Sales Tax Outside MN
- Reseller Pricing Available
- Educ. & Govt. Discounts
- Never a Surcharge!

ProDirect

10830 Nesbitt Ave South Bloomington, MN 55437

800-524-9952

Hours: Monday-Friday 8AM-7PM
International Orders: 612-884-0012
ProDirect Fax: 612-941-1109
Toll Free Tech Support 800-524-9952
Internet: DAILY WEB SPECIALS www.pdisales.com
E-mail: info@pdisales.com

Ad No. WD3.99

ALL PRICES ARE SUBJECT TO CHANGE WITHOUT NOTICE. RETURNED ORDERS ARE SUBJECT TO A RESTOCKING FEE. INTERNATIONAL CUSTOMERS PAY ALL SHIPPING CHARGES. ALL SHIPPING CHARGES ARE NON-REFUNDABLE. TO RETURN MERCHANDISE CALL FOR AN RMA NUMBER. ALL RMAS MUST BE RETURNED WITHIN 10 BUSINESS DAYS OF ISSUANCE. CUSTOMERS ARE RESPONSIBLE FOR SHIPPING CHARGES TO RETURN PRODUCT.

MEGAHAUS BEST BUY AWARD WINNER!

ULTRA SCSI

					Int	Ext
2111MB	5400rpm	512K	FB32100S	3yr	$205	$265
3228MB	5400rpm	512K	FB33200S	3yr	$235	$295
8455MB	5400rpm	512K	FB38400S	3yr	$379	$439
9100MB	7200rpm	1024K	XP309100S	5yr	$439	$499
18200MB	7200rpm	1024K	XP318200S	5yr	$775	$835

ULTRA WIDE SCSI

4550MB	7200rpm	512K	VK304550W	5yr	$250	$340
9100MB	7200rpm	512K	VK309100W	5yr	$395	$485

ULTRA 2 SCSI

4550MB	7200rpm	512K	VK304550LW	5yr	$250	$350
9100MB	7200rpm	512K	VK309100LW	5yr	$395	$495
9100MB	7200rpm	1024K	XP309100LW	5yr	$439	$539
18200MB	7200rpm	1024K	XP318200LW	5yr	$775	$875

We also stock Ultra-2 drives with SCA connector

We are the #1 source for Quantum

Capacity for the Extraordinary

Quantum Approved Audio Visual drives specifically tuned to meet demanding A/V apps.

ULTRA 2 SCSI A/V (Minimum sustained 10MB/sec)

4550MB	7200rpm	512K	VK304550LV4	5yr	$280	$380
9100MB	7200rpm	512K	VK309100LV4	5yr	$425	$525
18200MB	7200rpm	1024K	XP318200LV4	5yr	$805	$905

Ultra-2 Special

Step up to 80MB/sec Drive with Adaptec controller

9GB VK9MACI **$780**

External VK9MACX **$900**

18GB XP18MACI **$1160**

External XP18MACX **$1280**

DLT TAPE

The professional's choice for backup. We will not be undersold on Quantum DLT Tape drives!

Native	Compressed	Internal	Table Top	Rack Mount
20GB	40GB	$1899 DLT4000	$2109 DLT4000QX	n/a
35GB	70GB	$4675 DLT7000	$4895 DLT7000QX	n/a
100GB	200GB	n/a	$3879 DLT4500	$3769 DLT4500R
140GB	280GB	n/a	$5589 DLT4700	$5389 DLT4700R

Call for Differential SCSI models, and DLTstor products. Call for the best prices in the industry on DLT media.

DLT MEDIA SALE

	1-4	5-9	10-49	50+
DLTIII 10-20GB Media (DLT3)	$38	$37	$35	$33
DLTIIIXT 15-30GB Media (DLT3XT)	$40.5	$40	$38	$36
DLTIV 20-40GB Media (DLT4)	$80	$79	$77	$75

DLT Cleaner

(DLTCLEAN)

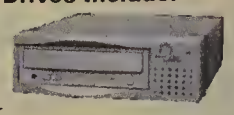
1-4 $41 5-9 $40

10-49 $38 50+ $36

• CD RECORDERS •

Smart Storage Solutions CDR Drives Include:

- ✓ Toast Mastering Software
- ✓ 5 FREE disks
- ✓ Toll Free support



4x8 CDR $259

Smart STORAGE SOLUTIONS

Includes Toast & DirectCD Software!

DirectCD from Adaptec now makes a CD Recorder as easy to use as a hard drive.

Compare our price and you will see we are the #1 source for CD Recorders!

	Internal	External
CD RECORDABLE Includes 5 Free Recordable Disks!		
4x8 Panasonic mechanism, tray load, 1MB buffer	**$259**	**$319**
4x12 Teac mechanism, tray load, 1MB buffer	$299	$359
4x12 Plextor mechanism, caddy/tray load, 2MB buffer	$379	$439
8x20 tray load, 2MB buffer	$479	$539

PRICE BREAKTHRU

Stomper CD label kit only $35 with CD-R drive!

CD REWRITABLE Includes 5 Free ReWritable Disks!		
4x4x16 Yamaha mechanism, tray load, 2MB buffer	$389	$449
Special external with only 1 CD-RW disk (SSS4X4X16M1)		**$429**
CD-RW starter pack 5 CD-RW disks & 10 CD-R disks (CDSTARTER)		**$50**

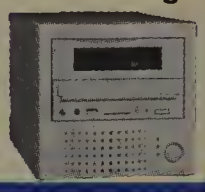
Fargo Signature CD Printer $999	CD Duplicators Call for price.	CD Stomper label kit $49	Toast retail package $89	100 CDR-74 w/drive $120	50 CD-RW w/ drive $289

All-in-one CD Mastering

Duo Master is one of the most innovative CD mastering solutions available. The solution provides a hard drive, Jaz or Syjet drive and CDR in one unit. Create your master on the hard drive, Jaz or Syjet cartridge drive and then master directly to the CD. This is the perfect CD mastering setup! Includes 5 free recordable CDs (5 CD-RWs with CD-RW drives) Add these prices to the internal prices above.

Quantum 2GB (DUO2GBM) $270 Quantum 4GB (DUO4GBM) $340

Jaz 2GB (DUO2GBJAZM) $359



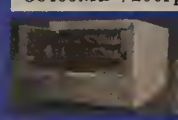
• SCSI HARD DRIVES •

Seagate

					Internal	External
4520MB	7200rpm	512K	ST34520N	3yr	$225	$285
4550MB	7200rpm	512K	ST34573N	5yr	$369	$429
6530MB	7200rpm	512K	ST36530N	3yr	$315	$375
9140MB	7200rpm	512K	ST39140N	3yr	$409	$469
9190MB	7200rpm	1024K	ST39173N	5yr	$425	$485
18200MB	7200rpm	1024K	ST118273N	5yr	$775	$835
ULTRA WIDE SCSI						
4520MB	7200rpm	512K	ST34520W	3yr	$225	$315
4550MB	7200rpm	512K	ST34573W	5yr	$369	$459
6530MB	7200rpm	512K	ST36530W	3yr	$315	$405
9140MB	7200rpm	512K	ST39140W	3yr	$409	$499
9190MB	7200rpm	1024K	ST39173W	5yr	$425	$515
18200MB	7200rpm	1024K	ST118273W	5yr	$775	$865
ULTRA 2 SCSI						
4550MB	7200rpm	1024K	ST34573LW	5yr	$369	$479
4550MB	10,000rpm	1024K	ST34502LW	5yr	$529	$639
9100MB	10,000rpm	1024K	ST39102LW	5yr	$699	$809
9100MB	10,000rpm	4096K	ST39102LW4	5yr	$779	$889
9190MB	10,000rpm	1024K	ST39173LW	5yr	$425	$535
18200MB	7200rpm	1024K	ST118273LW	5yr	$775	$885
18200MB	10,000rpm	1024K	ST118202LW	5yr	$1289	$1399
18200MB	10,000rpm	4096K	ST118202LW4	5yr	$1399	$1509

IBM

4550MB	5400rpm	512K	IBM34560N	5yr	$255	$315
9100MB	7200rpm	512K	IBM39130N	5yr	$459	$519
18200MB	7200rpm	1024K	IDGHS18Z	5yr	$819	$879
ULTRA WIDE SCSI						
4550MB	5400rpm	512K	IBM34560W	5yr	$239	$329
9100MB	7200rpm	512K	IBM39130W	5yr	$485	$575
9100MB	10020rpm	1024K	IDVGS9U	5yr	$579	$669
18200MB	7200rpm	1024K	IDGHS18U	5yr	$819	$909
ULTRA-2 SCSI						
9100MB	7200rpm	512K	IBM39130U2	5yr	$459	$569
9100MB	10020rpm	4096K	IDRVS9U2	5yr	$649	$759
18200MB	7200rpm	1024K	IDGHS18U2	5yr	$819	$929
18200MB	10020rpm	4096K	IDRVS18U2	5yr	$1099	$1209
36400MB	7200rpm	4096K	IDRHS36U2	5yr	$1679	$1789



SCA Drive Enclosure - Perfect for RAID

- Holds three 1" high SCA drives. • Drive modules are hot swappable. • Heavy duty construction and cooling.

Enclosure with modules (SCA3CASE) $329

• CD ROM DRIVES •

			Internal	External
16X- 5 disc changer	Nakamichi	MJS16M/XM	$189	$249
24X - 6 disc changer	Pioneer	DRM6324XM		$419
32X - Tray load	Toshiba	XM6201BM/XM	$105	$165
32X - 512K buffer	Plextor	PX32TSM/XM	$145	$205
36X - Slot load	Pioneer	DRU706M/XM	$90	$150

• MISCELLANEOUS •

IOMEGA 2GB Jaz	JAZ2X	$339
JAZ Media Sale	1GB qty 2-9 / 10+	$79 / $77
	2GB qty 2-9 / 10+	$87 / $85
ADAPTEC Controllers		
PCI Wide Single Channel	A2940MUW	$259
PCI Wide Dual Channel	A3940MUW	$439
PCI FireWire + Wide SCSI	AHA8945	$559
PCI Ultra 2	A2940MU2W	$399
ATTO Controllers		
PCI Fibre Channel	ATTOPCIFC	$769
E4 Cool DVD Kit		
Complete kit for Mac G3 computers	DVDMAC	**$299**
DVD-RAM Kit		
Complete ext kit w/ 1 disk 5.2GB rewritable	DVDRAMMAC	**$679**
DVD RAM media #DVDRAMDISK 1-4 $40 5-9 $37 10+ $35		
Maxoptix Optical Drives		
2.6GB T5-2600 $1149 5.2GB T6-5200 $1499		
2.6GB media 2-4/5-9/10+ $40/36/34 5.2GB media 2-4/5-9/10+ $95/91/89		
Sony Tape Drives with Retrospect		
Turbo (up to 90MB/min) 4-8GB external kit	SDT7000XM	**$699**
Turbo (up to 144MB/min) 12-24GB external kit	SDT9000XM	**$929**
120Meter Tapes 2-4/5-9/10+ $17/14/12 125Meter Tapes 2-4/5-9/10+ $31/28/26		

CD-RW PRICE DROP! • CDR MEDIA •

Nobody beats MegaHaus for CD Recordable Media prices! We will not be undersold. If by chance you do find a lower price, call us.

	CDR74	CDR74W	CDR74P
5 Pack	$21/$19	$59/$55	$28/$25
20 Pack	$42/$39	$189/$185	$65/$62
50 Pack	$93/$89	$429/$419	$139/$135
100 Pack	$159/$149	$819/$809	$259/$249
Budget 5 Pack	$19/$17	$33/$33	$24/$21
Budget 20 Pack	$36/$33	$129/$125	$55/$52
Budget 50 Pack	$74/$70	$319/$309	$119/$109
Budget 100 Pack	$139/$120	$619/$609	$189/$179

CDR74 is recordable, CDR74W is rewritable, CDR74P is printable. $ is alone/with CDR purchase. 8X certified, & Platinum now available.

• IDE HARD DRIVES •

3.5" ULTRA IDE - Call for models not listed

3228MB	Quantum	5400rpm	FB303200A	3yr	$125
4311MB	WD	5400rpm	AC24300	3yr	$144
6448MB	WD	5400rpm	AC36400	3yr	$165
7696MB	Quantum	5400rpm	FB307600A	3yr	$185
8606MB	Seagate	5400rpm	ST38641A	3yr	$185
10100MB	IBM	7200rpm	IBM10GXP	3yr	$266
10200MB	Seagate	5400rpm	ST310240A	3yr	$209
12750MB	Quantum	5400rpm	FB312700A	3yr	$249
13020MB	WD	5400rpm	WDAC31300	3yr	$229
14400MB	IBM	7200rpm	IBM14GXP	3yr	$359
16800MB	IBM	5400rpm	IBM16GP	3yr	$359
17280MB	Maxtor	5400rpm	M91728D	3yr	$325

2.5" IDE for laptops - Call for the best price around

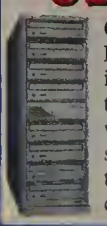
RAID

These preconfigured RAIDs can be run in RAID 0 or 1 mode. The capacity listed is for RAID 0 configuration. In RAID 0, the data is striped across a pair of drives. This is perfect for digital video such as Media 100, TrueVision, Avid, or other applications that require extremely high data transfer rates.

Includes - Ultra 2 LVD SCSI drives - Adaptec PCI Ultra-2 SCSI controller - Adaptec Remus Lite RAID software - Necessary cables

				Removable	Fixed
18GB	7,200rpm	2	9.1GB Quantum Viking drives	$1659	$1559
18GB	7,200rpm	2	9.1GB Quantum Atlas drives	$1859	$1659
18GB	7,200rpm	2	9.1GB Seagate Barracuda drives	$1829	$1629
18GB	10,000rpm	2	9.1GB Seagate Cheetah drives	$2289	$2089
36GB	7,200rpm	2	18GB Quantum Atlas drives	$2599	$2399
36GB	7,200rpm	2	18GB Seagate Barracuda drives	$2629	$2429
36GB	10,000rpm	2	18GB Seagate Cheetah drives	$3579	$3379

NETWORK READY CD TOWER



Connects directly to your Ethernet network. Easy to install. Auto switches between 10 and 100Mbps networks. Also has built-in http support for easy connection to Internet. Includes 8 32X drives SSS32X8N $1599

Since 1987 The Drive Authority

MEGAHAUS

1-800-786-1184

Sales lines open: M-F 8-8 Sat 9-3 CST

www.megahaus.com

Secure ordering • Daily Specials • #1 Drive Store on the Web!

2201 Pine Drive, Dickinson, Texas 77539
(281)534-3919 FAX (281)534-6580

Prices & specifications subject to change without notice. Shipping charges are nonrefundable. Returns must be in new condition and in original packaging. Defaced items may not be returnable. No refunds on software or special orders (items not listed in ad.) All refunds subject to 15% restocking fee. All trademarks are registered trademarks of their respective companies. Personal checks held for clearance. We reserve the right to refuse any sale for any reason. Bundle price good only if sold at ad price. All warranties listed are manufacturer's warranty only. ©1998 MegaHaus Inc.

J&R COMPUTER WORLD

Authorized Reseller

One of America's Largest Authorized Apple® Dealers

Authorized Reseller

Modems

TDK CyberExpress 5600
56K v.90 PCMCIA Fox/Modem for Mocintosh/Windows
$99.99 (TDK U6600012)

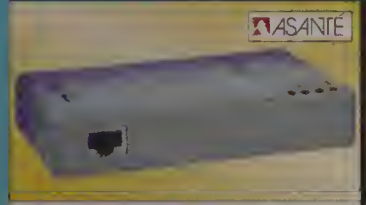
U.S. Robotics External v.90 Modem (56K) (USR EXTMAC56V90) **$139.99**
Global Village External v.90 Modem (56K) (GLV EXTV90S6K) **$149.99**
Global Village PCMCIA v.90 Modem (56K) (GLV 56KV90MAC) **$169.99**

Scanners

Microtek SlimScan C3
36-Bit USB Color Sconner
$49.99 after $30 mail-in rebate (MTK SLIMSCANUDP) exp. 2/28/99

UMAX Astro 1220 with USB (36-bit) (UMX AST1220U0U0) . . . . . **$129.99,** after $20 mfr. rebate (exp. 2/28/99)
Microtek ScanMoker X6EL (36-bit, scans legal) (MTK SCANX6ELOP) **$249.99**
UMAX Astra 2400S (36-bit, scans legal size) (UMX AST2400S0U0) **$349.99**

Networking



Asante AsanteTalk
Ethernet-to-LocolTolk Connection for Apple iMoc™
•Allows connection of LocalTalk printers
$99.99 (ASA 99-00505-81)

3Com OfficeConnect Hub4 (3COM 3C16704) **$48.99**
3Com OfficeConnect Hub8/TPO
•Connect up to 4 hubs on the 8th port (3COM 3C16700) **$79.99**

Mac Software

MacInTax 98
by Intuit

•Tox preparation progrom guides you thraugh your return step-by-step •Imports from Quicken •Money-saving advice •Electranic filing
$39.99 (IUM MIT98-C)

Art Explosian 250,000 Images by Nova **$84.99**
Final Draft (4.1) by B.C. **$229.99**
HandMail by Smart Cade **$44.99**
Norton Utilities (4.0) by Symantec . . . . . **$89.99** (plus $50 rebate for owners of previous versions)
Virex (5.9) by Network Associates **$56.99**
Virtual PC (2.1) with Windows 98 by Connectix **$169.99**

Printers

EPSON Stylus® COLOR 600
Ink Jet Printer
•1440-dpi photo-quality calar printing ond loser-quality block text •Refurbished with a 2-year warronty from Epson
$169.99 (EPS C20001-N)

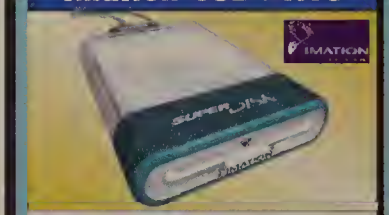
EPSON USB Adapter Cable ond Drivers
(dedicated adopter for connectian of Epson Stylus 600 and Apple iMac)
(EPS CUSBPK2) **$39.99**

Data Storage

Iomega Jaz® 2GB
Portoble Externol SCSI Drive
•2GB cartridges sold separately
$349.99 (BER JAZEX2GIGNC)

Iomega USB Zip Drive
100MB External USB Drive
•100MB Zip cartridges sold separately
$149.99 (BER ZIP100US8)

Imation USB Drive



Imation™ SuperDisk™
USB Drive for the Apple iMoc™
•Connects eosily with iMac •Reads and writes 120MB SuperDisk •Alsa reads and writes standard high-density 3.5" floppy diskettes (both Mac & PC formats) •Sleek design complements iMoc
$169.99 (IMT 44002278065)

Imation SuperDisk Diskettes (IMT 4402278420) **$49.99 per 5-pk.**

Apple Monitors

Apple® ColorSync® Display
17" Monitor (16.1" VIS)
•Sany Trinitron® CRT technalagy
$699.99 (APP M6159LL/A)

Multiple Scan 720 17" Display (16" VIS) (APP M6151LL/A) **$499.99**
ColorSync 20" Display (19" VIS) (APP M6162LL/A) **$1499.99**
15.1" Flat-Panel Studio Display (15.1" VIS) (APP M6356LL/A) **$1299.99**

J&R EXCLUSIVE PURCHASES!

Apple® Power Macintosh®

Workgroup Server G3-266 128MB

•Couples the latest developments in processor and server technologies with traditional Mac OS ease of use •266MHz G3 processor •128MB RAM, exp. to 384MB •512K L2 cache •Two 4GB wide SCSI hard drives •24x CD-ROM drive •10/100Base-T ethernet and localtalk •2MB video RAM •3 standard PCI expansion slots •Bundled software includes Mac OS 8.1 tuned for servers, AppleShare IP 5.0, and Virex 5.8 •Monitor sold separately

Authorized Reseller

$2199.99 (APP M6461LL/A)

Limited Quantity, While They Last!

Apple® Macintosh® PowerBook® G3

with 233MHz PowerPC™ G3 processor and 13.3" TFT Active-Matrix Color Display

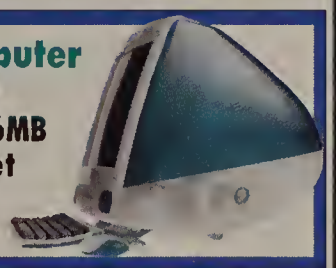
•32MB SDRAM •2GB hard drive •20x CD-ROM drive
•1.4MB Apple SuperDrive® •66MHz system bus
•Built-in 10BaseT ethernet •4MB SGRAM video memory

$2199.99 (APP M6481LL/A)

TDK CyberExpress 5600 56K v.90 PCMCIA modem..... (TDK U6600013).... **$149.99**

PNY (for 32MB, 64MB, or 128MB **PNY Memory Upgrades**, see below) PNY

Apple® Power Macintosh® iMac™ G3 Computer



•233MHz PowerPC™ G3 processor •32MB SGRAM
•4GB hard drive •Built-in 15" monitor (13.8" VIS) •6MB VRAM •24x CD-ROM •56Kbps v.90 modem •Ethernet

Super Low Price! (APP M6709LL/B)

PowerPC and the PowerPC logo are trademarks of International Business Machines Corporation, used under license therefrom. Apple, the Apple logo, Macintosh, Power Macintosh, PowerBook, Apple are registered trademarks of Apple Computer, Inc. Zip drive is a trademark of Iomega Corporation. ©1999 Apple Computer, Inc. All rights reserved. Apple, the Apple logo, Macintosh, Power Macintosh, and PowerBook are registered trademarks of Apple Computer Inc. All other trademarks are the property of their respective owners. All Apple products are designed to be accessible to individuals with disabilities. For more information in the U.S. only, call 1-800-766-2333 or TDD 1-800-833-6223

PNY Technologies Upgrades!

RAM Memory Upgrades Improve Performance and Speed!

(for G3 PowerBooks & iMoc)

32MB (PNY PAPMG3WS32) **$89.99**
64MB (PNY PAPMG3WS64) **$169.99**
128MB (PNY PAPMG3WS128) **$299.99**

(for G3 Desktops & MiniTowers)

32MB (PNY PAPMG332CS) **$79.99**
64MB (PNY PAPMG364CS) **$169.99**
128MB (PNY PAPMG3128CS) **$249.99**

J&R CORPORATE SALES BUSINESS LEASING:

J&R CORPORATE SALES

No Money Down, No Payments for 30 Days!
Call J&R Corporate Sales at 1-800-221-3191 or 1-212-238-9080

Order from www.jandr.com
AOL Keyword: J&R

To Order Toll Free and Receive a Free Catalogue

24 Hours, 7 Days, Anywhere In The USA

800-221-8180

PARK ROW • NEW YORK • NY • 10038 FAX: 1-800-232-4432

All Major Credit Cards Accepted

Overnight Delivery Available!

Order Code: MW903

(prices good until 3/31/99)

Not responsible for typographical or pictorial errors. Merchandise is brand-new, factory-fresh & 100% guaranteed! Some quantities may be limited.

PRODUCT INDEX

Category	Page No.
Business Operations	**142–143**
Bar Code	
Print Utility	
Software	
Communications/ Networking	**145**
Cross Platform	
Modems	
Education/ Entertainment	**143–145**
Discount Software	
Graphics	**143**
CAD	
Fonts	
Memory & Upgrades	**161–163**
Memory Upgrade	
Peripheral Products	**146–148**
Digital Media	
Magnetic Media	
CD ROM	
Services	**164–165**
Printing	
Data Recovery	
Digital Production	
Repair	
Systems & Peripherals	**148–161**

Account Manager:
Carol Johnstone.....415.243.3691
carol_johnstone@macworld.com

Account Manager:
Niki Stranz.....415.243.3664
niki_stranz@macworld.com

Digital Advertising Coordinator:
Dennis McKown....415.243.3523
production@macworld.com

Assistant:
Alissa Mach.....415.243.3628
alissa_mach@macworld.com

BAR CODE SOLUTIONS

• Labeling Applications
• Bar Code Font Packages
• Scanners & Lasers
• Thermal Label Printers

Visit us online at:
www.bearrock.com

Bear Rock Offers:
Free Expert Consultation,
Lifetime Technical Support
and Satisfaction Guaranteed
on ALL Bar Coding products!

Bear Rock Welcomes VARs.

FREE Handbook
"Guide to Understanding Bar Code Basics"

Bear Rock TECHNOLOGIES

Call Today for a FREE Consultation!
800 232-7625
Intl: (530) 672-0244 Fax: (530) 672-1103

Choose 403 at www.macworld.com/getinfo

PrintChef® – "it's not printing magic, it's printing science..."

When it comes to printing:

printChef® =

Booklets
Toner/Ink Control
New Paper Sizes
Multi-Ups & Labels
Mail Merging
Bar Codes
Logging & Security
Collected Files
Sign Your Faxes
Serialization
Tiling & Banners
Letterheads
Previews & Covers
Fronts & Backs
to your design...

...there is no equal!

print different™

Add the printChef button to your print dialog today...

for ANY printer and ANY application— all in one package!

~~Street priced at $60~~

~~$95~~ printChef® (personal)
$45 Tiling Helper™
$35 Fill-in-the-Blank™
$350 printChef Pro

60-day money-back guarantee

To boost the printing power of any application, call (800) 648-6840...or try our demos, print recipes, & multimedia tutorials at www.mindgate.com

...for International callers
Worldwide (931) 937-6800
Fax Orders (931) 937-6801

printChef is a print extension that sits between any application & any printer driver. It uses Print Recipes that you design to control any application's output.

System 7 or 8. For 680x0 & any PowerMac. Works with ANY printer & ANY application. printChef's miracles require only 32K of memory.

MindGate® Technologies, Inc.
164 Oliver Smith Road
Flintville, TN 37335-5335

Order direct from us
VISA
or thru
MacWAREHOUSE
800-255-6227

Tiling Helper is a printChef plug-in. MindGate, printChef, and their logos are registered trademarks. "print different", Tiling Helper, Fill-in-the-Blank, PrintTracker, and PrintMailer are trademarks, and "it's not printing magic, it's printing science" are salesmarks of MindGate Technologies, Inc.

Choose 402 at www.macworld.com/getinfo

http://www.scientific.com

Professional Software Developers

Looking for career opportunities?
Check out our website!

Nationwide Service
Employment Assistance
Resume Help
Marketability Assessment
Never a fee

Scientific Placement, Inc.

800-231-5920 • 800-757-9003 (Fax)
das@scientific.com

Macworld SHOPPER

Bar Code • Software Business Operations
Software Education/Entertainment
CAD • Fonts Graphics

Finally, a Powerful Thermal Transfer Printer for FileMaker Pro®, Quark®, Illustrator®, or Mac-Barcode® ProLabel!

One Stop Shopping with Friendly Support from the Experts. Call Us for Free Bar Code Consulting and Information.

- Mac-Barcode® ProLabel v2.0
- Desktop SmartScanners for Windows & Mac
- Thermal Transfer Printers
- Walk-About for Newton® and Other HPC's

The Mac-Barcode Co.
800-733-7592
or Visit Our Web Site at:
www.mac-barcode.com
Tel: 508-746-4242 Fax: 508-746-6030

The Mac-Barcode Co.

Choose 408 at www.macworld.com/getinfo

MBC³ The new version of MacBARCODA

Over 170 bar code variations! A totally new MacBARCODA package including over 30 variations of Code 128, UPC, PostNET, ITF, Codabar, Code 39, book and magazine codes, coupon codes, SSC codes and much, much more! • Apple Scriptable! • Color control! • Most accurate bar code creator available! • Unlimited free telephone support • PowerMac and OS8 compatible and 68000/System 7.x

Also PostScript & Thermal Label Printing Solutions

Computalabel INTERNATIONAL
28 Green Street, Newbury, MA 01951
Tel:800-289-0993 Fax:978-462-9198
www.zoo.co.uk/~computalabel

Choose 405 at www.macworld.com/getinfo

Precision Type™ Font Reference Guide™ and FontLink™ CD-ROM

Over 15,000 fonts from more than 60 foundries

$59.00 plus $8.00 shipping

FontLink CD-ROM
Includes over $200 of FREE fonts

800.248.3668

Precision Type, Inc.
47 Mall Drive, Commack, NY 11725
Tel 516.864.0167 Fax 516.543.5721

Choose 407 at www.macworld.com/getinfo

Bar Code Headquarters

- Portable Batch Readers
- Cordless Interactive RF Bar Code Readers
- ADB Bar Code Readers
- Wand, Laser, CCD, Magstripe or Slot Badge
- PostScript Bar Code Fonts

0 12345 67890 5

- 30 Day $ Back Guarantee
- Free Shipping in USA
- Toll Free Tech Support

WORTHINGTON DATA SOLUTIONS

1-800-345-4220
Or Call 831-458-9938
Website: www.barcodehq.com

CADMOVER® v.5.1

What good is a built in translator if it doesn't work?

You've worked hard and now it's time to use those files in another program. You try to import them & all you get is garbage. Not with CADMOVER - For over ten years we've been helping people beat their deadlines, no re-drawing, no touch-ups.

File formats: DWG, DXF, EPSF, PICT, CGM, IGES, HPGL, STL, MiniCAD, DDES2, etc... Internal Features: scaling, 2D/3D views, font mapping and more. With 16 decimal place accuracy redrawing is a thing of the past.

800-579-2244 • http://www.kandusoftware.com/macworld

KANDU software corporation

Create your own bar code graphics.

-Imaging Magazine

CALL FOR FREE DEMO

Bar Code Pro® v3.5 with Veribar®

For guaranteed readability!

Create perfect PostScript (EPS) bar code graphics for Quark, PageMaker, Illustrator, Freehand, etc. All popular bar code types (UPC, Postnet, 39, EAN, 128, ITF, ISBN) included. Works with any printer resolution, with no fonts required! Mac/Win95/NT

SNX www.snx.com Call 800 619-0299
Tel 718 499-6293 Fax 718 768-3997
Y2K Year 2000 Compliance

Choose 406 at www.macworld.com/getinfo

STUDENTS / TEACHERS SAVE UP TO 75%

Electronic Image We'll Beat ANY Advertised Price!!

Adobe, Microsoft, Lotus, & Borland products also ovailoble at the some great discount.

3D Suite 3.0 289	EndNote 3.0 Stu. ...99	LightWove 3D 5.6 .889	QX-Tools 4.0 89
Authorwore EDoc .399	Eye Candy 3.0.1 ...79	Logomotion 2.1 69	Roy Dream Studio 119
Convos 5.0.3 159	FileMoker Pro 4.1 .119	Mothemotico Stu ..129	Roy Dream 3D 69
CodeWorrior 4.0 ..119	Finol Droft 4.1 145	MiniCAD 8.0 339	Softwindows 98 ..169
Conflict Cotcher 8 ..79	Fireworks 99	NetObjects Fusion ..99	Studio Pro 2.5.3 ..495
CorelDRAW 8.0 ...139	Flosh 3.0 99	OmniPoge Pro 8.0 .349	Total Xoos Bundle ..89
CyberStudio 3.1 ..169	FreeHand 8.0 99	PogeTools 2.0.1 69	Videoshop 4.0 3D .149
Debabelizer 3 289	HomePoge 3.0 59	Pointer 3D 129	Virex 5.9 55
Director 7 EDoc ...349	Infini-D 4.5 329	Painter 5.5 Web ..219	VirtuolPC Win98 ..159
Director 7.0 SIS ...679	Inspire 3D 289	Phototools 3.0 89	Wocom Intuos 6x8 299
Dreomweover 2.0 ..99	Kois Power Tools 5 ..79	Poser 3.0 119	WordPerfect 3.5.1 ..39
Electric Image 2.8 1295	KPT Bryce 3D 3.0 .115	PreFlight Pro 2.0 ..279	Xenofex 79

WebSite www.electronicimage.com • Fax (925) 798-2464 • FREE Catalog

1·888·EDU·SOFT

Choose 410 at www.macworld.com/getinfo

Students-Teachers-Faculty

We'll beat any advertised price!

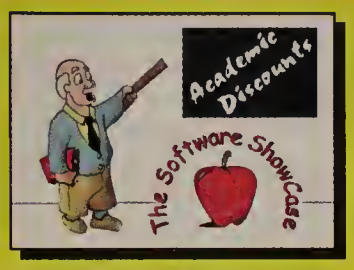
CorelDRAW Suite 6.....99	Infini-D.....269
CyberStudio.....159	Microsoft Office 98....Call
Director 6.5.....329	Painter 5.5.....189
Dreamweaver.....99	Poser.....108
Filemaker Pro 4.1.....109	Stuffit Deluxe.....109

Call now for pricing on over 25,000 other titles!

ACADEMIC DISCOUNT WAREHOUSE

www.adwonline.com **800-333-8571** Fax #: 512-450-0263

Choose 411 at www.macworld.com/getinfo



CYBERSTUDIO PRO 3.1

Design fully dynamic web sites.

FILEMAKER PRO 4.1

Award-winning relational database

EYECANDY 3.01

Photoshop filters that take the drudgery out of creativity

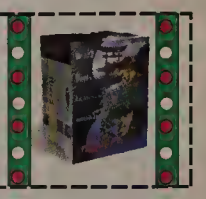
DREAMWEAVER 2

The visual tool for professional web site design
NEW VERSION !!

SAVINGS FOR STUDENTS, TEACHERS, & SCHOOLS

Visit our Web Site- http//www.softwareshowcase.com

Amapi Studio 3.0.3	$ 125.00	Intellihance 4.0 Pro	$ 139.00
AppleWorks 5.0 Office	$ 99.00	Iomega ZipPlus 100 Ext	$ 195.00
Auto F/X Photo Edges 1,2,3 or 4	$ 149.00	Kai's Power Tools 5.0	$ 95.00
BBEdit 5.0	$ 79.00	LightWave 3D 5.6	$ 899.00
Boris FX 3.5 Media 100	$ 449.00	Mac Academy Tutorial Videos	$ 35.00
Bryce3D 3.0	$ 119.00	MacDraft 4.3	$ 145.00
CADtools 1.2	$ 99.00	MacLinkPlus 10 Deluxe	$ 69.00
Canvas 6	$ 0.00	MagicMask	$ 75.00
Coda Finale 98	$ 269.00	Mask Pro 2.0	$ 199.00
ColorDrive 1.5.3	$ 89.00	Mathematica 3.0	$ 149.00
Conflict Catcher 8.0	$ 75.00	Matlab 5.0	$ 99.00
CorelDRAW 8.0	$ 169.00	Media Cleaner Pro 3.1	$ 249.00
DeBabelizer 3.0	$ 299.00	MultiAd Creator2 1.1	$ 149.00
DenebaCAD 1.5	$ 269.00	Myrmidon 2.1	$ 39.00
EdgeWizard	$ 75.00	Neal's Efex Bundle	$ 99.00
ElectricImage Broadcast 2.8	$ 1399.00	NetObjects Fusion 3.0	$ 99.00
EndNote 3.0 Student	$ 105.00	Nisus Writer 5.1	$ 79.00
Eudora Pro 4.0	$ 35.00	ObjectDancer 1.5	$ 199.00
Eye Candy 3.1 AE	$ 349.00	PM2Q 5.6	$ 75.00
FLIGHTCHECK 3.4	$ 199.00	Painter 3D	$ 129.00
Final Draft 4.1	$ 149.00	Painter 5.5	$ 219.00
FireWorks 1.0	$ 99.00	PhotoTools 3.0	$ 89.00
Flash 3.0	$ 99.00	Poser 3.0	$ 125.00
Form Z 2.95	$ 0.00	RayDream Studio 5.0	$ 125.00
FreeHand 8.0	$ 99.00	SoftWindows 98 5.0	$ 169.00
Genuine Fractals 2	$ 129.00	Speed Doubler 8	$ 55.00
HoTMetaL Pro 3.0	$ 75.00	Spring Cleaning 2.0	$ 35.00
Hollywood FX Silver 3.1	$ 359.00	Strata StudioPro 2.5	$ 549.00
HomePage 3.0	$ 59.00	StuffIt Deluxe 5.0	$ 59.00
HyperStudio 3.1	$ 119.00	Total Xaos	$ 119.00
InfiniD 4.5	$ 329.00	Virex 5.8	$ 69.00
Inspiration 5.0	$ 79.00	Virtual PC 2.1 Mac w/Win 98	$ 159.00
Inspire 3D	$ 299.00	Wacom Intuos 6x8 Tablet	$ 285.00



Includes:
Poser 3
Bryce 3D
Painter 3D
Ray Dream Studio 5

3D SUITE 3.0

The world's most powerful integrated Development Environment!

CODEWARRIOR PRO R4

The most powerful tool for multimedia and the web.
NEW VERSION!!

DIRECTOR 7.0

We will beat any Advertised Price!!! "Call For Pricing On COREL Products"

CALL FOR A FREE CATALOG
(800) 699-1836
Priority Code: 1000
* Prices and availability subject to change
* Not responsible for typographical errors

SOFTWARE SHOWCASE INC. (800) 699-1836
417 EUCLID AVE, LOCH ARBOR, NJ 07711
PHONE (732) 660-8820
FAX (732) 660-8828

"School P.O.'s Welcome"

Your Connection to Student, Teacher and School Discounts!

$299

3D Suite III includes RayDream Studio 5, Bryce 3D, Poser 3 & Painter 3D

FileMaker Pro 4.1 "#1 Relational Database" $119

$99 PhotoTools 3.0 "Professional Effects"

CyberStudio Pro 3.1 "Professional Web Publishing Tool" $179

Astound 3.0	$99	Kai's Power Tools 5.0	$79
Authorware 5.0 E-Doc	$379	LightWave 3D 5.6	$889
BBEdit 5.0	$79	MacLinkPlus Deluxe 10.0	$65
Boris FX 3.5	$299	MagicMask 2.0	$75
Bryce 3D	$119	MARKZTOOLS III 7.0	$99
Canvas 6.0	$199	Mask Pro 2.0	$199
CineLook Broadcast	$399	Mathematica 3.0 Student	$139
Coda Finale 98	$249	Media Cleaner Pro 3.1	$249
CodeWarrior Pro R4	$119	Neal's Type Efex	$79
Conflict Catcher 8	$69	NetObjects Fusion 3.0	$99
CorelDRAW 8	$Call	OmniPage Pro 8.0	$349
Creator2 1.1	$149	Photo/Graphic Edges Vol 1,2,3,or 4	$99
DeBabelizer 3.0	$275	Poser 3.0	$119
Director 7.0 E-Doc	$329	RayDream Studio 5.0	$119
Dramatica Pro 3.0	$199	ReelMotion	$529
ElectricImage Broadcast 2.8	$1349	Retrospect 4.1	$109
Eudora Pro 4.0	$35	Scriptware 1.0	$139
Eye Candy 3.0.1	$79	SoftWindows 98 5.0	$169
Final Draft 4.1	$149	SoundEdit 16 plus Deck II	$249
Final Effects Complete	$799	StudioPro 2.5	$449
FireWorks 1.0	$99	StuffIt Deluxe 5.0	$49
Flash 3.0	$99	Test Strip 2.0.2	$89
FLIGHTCHECK 3.4	$199	Total Xaos	$99
form.Z 3.0	$Call	Wacom Intuos 6X8 Tablet	$299
FreeHand 8.0	$99	WebSpice Animations	$55
HomePage 3.0	$59	WebSTAR 3.0	$399
Infini-D 4.5	$299	WordPerfect 3.5.1	$Call
Inspiration 5.0	$69		

Xenofex 1.0 "Powerful set of Photoshop Plug-ins" $79

$219 Painter 5.5 Web Edition "Digital Painting & Image Creating Tool"

Dreamweaver 2.0 "Professional Web Site Design" $99

$339 MiniCAD 8 VectorWorks "CAD solution of choice"

Visit our new Web Site
www. software-connection.com

Software Connection (800) 568-6837

2640 Highway 70 Bldg. 7 Manasquan, NJ 08736
(732) 223-8770 Fax# (732) 223-8768
e-mail CONNECTSW@AOL.com

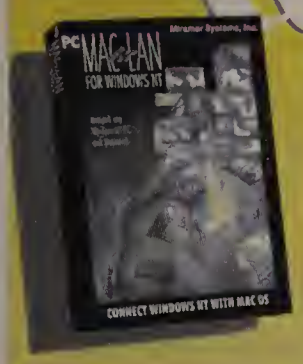
Major Credit Cards accepted

- PC products also available
- Software Connection has the right to refuse any order(s)
- Not responsible for typographical errors
- Prices & availability subject to change
- Symantec products also available to qualifying customers
- School Purchase Orders accepted

We will match or beat any advertised price.

CALL for a FREE CATALOG

iNTegrate maciNTosh & priNTers



with PC MACLAN for Windows NT

Introducing the only complete peer-to-peer networking solution for sharing printers, files, drives and more between a Windows NT 4.0 Workstation or Server and a Mac OS machine!

- Print to AppleTalk or PostScript Printers from a PC
- Complement AppleTalk File and Print Services on NT Server
- Use NT Workstation as an AppleShare File Server
- Share NT Files, Drives, and Volumes with AppleTalk Networks

Miramar Systems, Inc
Intelligent networking between PCs and Macs

Call Now for a Free Demo!
1-888-722-2723
www.miramarsys.com/mw.htm

Choose 414 at www.macworld.com/getinfo

GrooveMaker
www.groovemaker.com

$69

Turn Your Mac into a Powerful Groove Station!!!

GrooveMaker™ is the revolutionary software and sound-loops package that allows you to produce professional dance tracks in a snap!!! Includes 850MB of high quality dance-loops.

call now...
800-747-4546
e-mail: info@groovemaker.com

STUDENTS!

Save up to 75% OFF Popular Software!

FREE CATALOG

Call for a FREE Student Software Guide:
(800) 874-9001

Adobe • Microsoft • Autodesk
Kinetix • Corel • Macromedia
MetaCreations • Wacom
Symantec • Extensis • More!

www.JourneyEd.com
JOURNEY Education Marketing

CALL FOR A FREE CATALOG: (800) 874-9001

Choose 415 at www.macworld.com/getinfo

Attn: Students-Teachers-Schools

Authorware	$399	KPT Bryce 3D	115
CodaFinale97	245	LightWave 5.5	889
Debab.Toolbox	279	MiniCAD 7	315
Director 7	339	MS Office 98'	199
Dreamweaver	99	MS Word 6.01	99
Electric Image	1329	Norton Utilities	65
Eye Candy 3.0	74	Painter 5.5	205
FileMaker Pro	135	PageMaker 6.5	call
Final Draft 4.1	145	Photoshop 5.0	call
FireWorks 1.0	call	WordPerfect 3.5	49
Flash 3.0	99		
GoLive Cyber.3	175		
Kai's PowerT. 5	89		

*We accept Purchase Orders from schools.
*Call for Adobe, Microsoft & QuarkXpress!!

1-888-416-4555
www.ace-soft.com

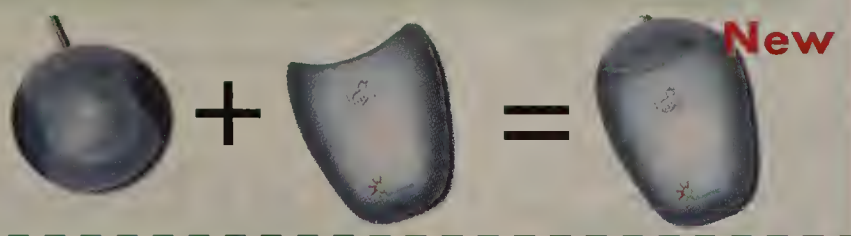
Ace Software Express Inc.
666 Anderson Ave #3
Cliffside Park, NJ 07010
Tel:201-941-4949 Fax:201-941-5154

Mac® Networking at PC Prices!

Macsense®

The Ergonomic Solution for the iMac Mouse

Get a grip on your iMac mouse with the new **iCatch** mouse adapter.



252-User Internet Sharing Hub

The new **PalmRouter Elite** offers high-speed Internet access for everyone in your office or household with just one modem, one phone line, and one ISP account.

New features: DHCP Server, Web-Configuration, 2 serial ports

$299

For Mac & PC

Networking Solutions for Today and Tomorrow

PCI, LC PDS, NuBus Adapters, PCMCIA Ethernet cards, Transceivers, SCSI & LVD Terminators too!

Macsense products available through

ClubMac MacMall The Mac Zone MacWAREHOUSE MacConnection

Please call or e-mail for a FREE product catalog

Lifetime warranty

Macsense Connectivity Inc.
Tel: 1-800-642-8860 Fax:408-844-0328
3350 Scott Blvd. Bldg. 2 Santa Clara CA 94089
http://www.macsensetech.com

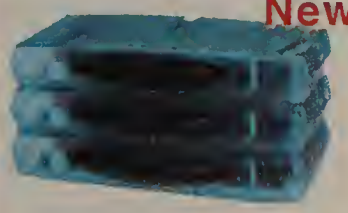
Switches

New

Get unsurpassed speed with our 10/100 N-Way switches! 2, 5, and 8 port models available

Dual-Speed Hubs

New



Connect 10 and 100 Mbps Mac & PC users to the same network!

6, 8, and 16 port models available

CD COPIER

Please call or visit our web site for more info. on all of our products.

Rapid CD Duplication service also available.

From $1495

PRINCETON DISC 800-426-0247

www.princetondisc.com

DFI 20" SONY COLOR MONITOR -GDM 1960

800-390-7020

181 Salem Street, Malden, MA 02148

14"-$ 99!
17"-$239!
19"-$499!

VISA MasterCard DISCOVER

Choose 419 at www.macworld.com/getinfo

The European Standard for Mission Critical ISDN File Transfer is Now Available in the U.S. and Canada!

- Easy to Use
- Auto Multi-Protocol Detection
- Built-in High Speed Codec
- Lifetime Hardware Warranty

HERMSTEDT Communication Products

www.hermstedt.com
800-650-ISDN

Choose 418 at www.macworld.com/getinfo

CD-ROM PRODUCTION

1000 Retail-Ready Stamped CDs

Includes two color discs, four color glossy insert & tray cards, jewel case, and poly wrap. Complete turnkey — just send a CD-R and art files! Call for details.

CATALOGIC

Your CD-ROM Production Source™
http://www.catalogic.com

CD-R Gold™ by Catalogic

- Easy to use labeling kits
- CD-R silk screening service
- Short run CD-R duplication
- 4.1Gb/hour standalone duper

CD-R media as low as $1.49

935 Sierra Vista Avenue • Mountain View, CA 94043
Telephone: 650-961-4649 Fax: 650-962-5333 800-255-4020

DUPLICATORS:

Panasonic 4x8 CD-R bundle..... $295

TEAC 4X12 CD-R bundle.. $349

Yamaha 4x4x16 CD-R bundle.... $449

Plextor 8x20 CD-R bundle... $649

Sanyo 8x20 CD-R bundle... $649

Jaz 2GB + Yamaha 4x4x16 exter. bundle..... $899

AFFEX CD Color Printer 1440 dpi..... $1,399

LabelMaker for CD's..... $39

CD-R BLANKS as low as 99¢ also available Ricoh & More

Replica	MediaFORM
SA1000 1CD-R $989	CD5900... $5,499
SA3000 3CD-R $2,399	CD3704... $7,499
SA8000 8CD-R $4,499	CD 37068 w/printer... $15,999
	FOR CD DUPLICATION... CALL

Shimad

1-888-4-SHIMAD toll free 888-474-4623

PH. 650-493-1234 www.shimad.com FAX: 650-493-1333

Ports for Your PowerMac!

SX Serial Card

"Fast, Solid and Reliable" - MacWorld

Better than a Switch or Juggler
- Provides simultaneous, trouble free use of multiple serial devices
- 2 or 4 port PCI serial cards available
- For Comm Toolbox savvy software
- SX-2 just $199 SX-4 only $299

Keyspan USB Card

Add USB to your PowerMac
- PCI card with 2 USB ports
- Use all the new USB devices on your existing Mac
- UPCI-2 just $59!

Expand your iMac!

Keyspan USB Serial Adapter

Add 2 Mac serial ports to your iMac
- For use with tablets, PDAs, cameras and many printers
- Get two ports for the price of the single port solutions!
- USA-28 just $79

USB UNIVERSAL SERIAL BUS

Keyspan USB Hub

Connect more USB devices to your iMac
- USB compliant 4 port Hub
- UHUB-4X just $69

USB Cables

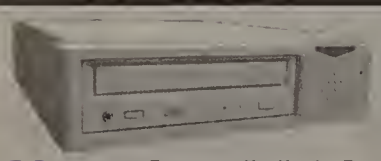
6 ft. Device Cable (A-B) $10
6 ft. Extension Cable (A-A) $12

All products include 5 year warranty

KEYSPAN
www.keyspan.com (510) 222-0131

The Mac Zone (800) 213-6356 code: KWM8

Choose 417 at www.macworld.com/getinfo



Yamaha 4416

4x/4x/16x CD-RW Drive

$359

All drives include Adaptec Toast 3.5.5 & Direct CD, Cables, Media & Toll Free Support!

External $449

CDR Media

Mitsui Silver in Jewel Case	$1.39
MegaMedia on Spindle	$0.89
Mitsui White for Signature	$1.89
TDK Spindle	$1.39
TDK Digital Audio	$4.99
80m CD-R Media by Ritek	$1.99

All prices based on 200pc. Quantities

3M Looking for supplies? HEWLETT PACKARD
PIONEER Maxoptix SONY
Canon EPSON Exabyte digital

Visit our new online catalog for all your tape, cartridge, optical and inkjet needs

www.mediasupply.com

New Hours! 8:30am to 7:00pm EST.

All packages ship by Federal Express

800-944-4237

MEDIA SUPPLY

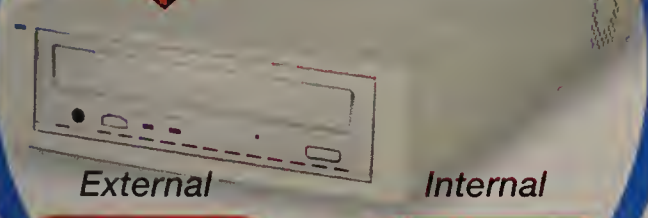
400 Eagleview Blvd. • Exton, Pennsylvania 19341
Phone: 610-458-9100 • Fax: 610-458-9464

GET 6.5GB OF STORAGE FREE!

Receive 10 CD-R discs with purchase of CD-R or CD-RW drive!

ORDER TODAY! 888.494.9469

NEW LOWER PRICE!



External $359 | Internal $279

AMC DiscWRITE

LOW PRICES ON FAST NEW DRIVES!

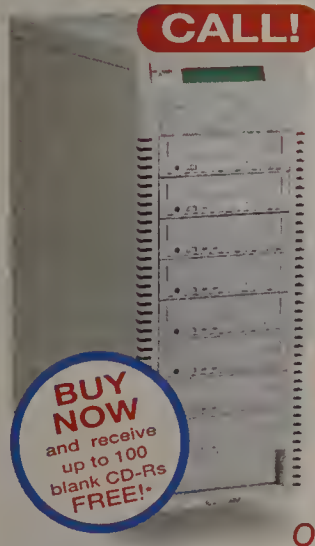
Now you can get the AMC DiscWRITE 4x8 external SCSI CD-R recorder for only $359! Plus Yamaha's long awaited 4x4x16 CD-RW drive is in stock and ready to go for only $499 *(external)*. Want even more speed? How about the *NEW Plextor PlexWRITER 8x20 CD-R?* This amazing new drive boasts the fastest record & read speeds of any available CD-R drive, and AMC has it!

AMC DiscWRITE 4x8 Recorder
Ext. $359 ..... *Int.* $279
Yamaha 4416 4x4x16 CD-RW **NEW!**
Ext. $399 ..... *Int.* $499
Plextor PlexWRITER 8x20 CD-R **NEW!**.....
.....**CALL for current pricing**

WHY BUY AMC?

- We're storage experts, not just "order-takers"
- We speak SCSI & USB fluently!
- We won't be undersold - we'll match in-stock prices!
- Browse & order Online, 24 hours a day, 7 days a week
- Proudly serving Mac users since 1991
- Extensive product selection
- Expert In-house Tech Support
- Leasing & financing available
- No Surcharge on Credit Cards
- P.O.s accepted with credit approval

CD-R DUPLICATORS



BUY NOW and receive up to 100 blank CD-Rs FREE!*

CALL! MEDIAFORM CD-5900

The CD-5900 will duplicate up to 24 650mb CD-Rs per hour, and with add-on tower units can duplicate up to 64 CDs simultaneously. *That's almost 100 CDs per hour!* Call for details on this new low priced powerhouse from MediaFORM & AMC.

MediaFORM Duplicators-selected as E-Media Magazine's "Editor's Choice" 2 years in a row!

Other MediaFORM models available:

CD-5300 4 CD Duplicator **NEW!** $2,799
CD-4300 3 CD Duplicator $1,499
CD-2701 50 CD Duplicator ..... *new lower price!* $4,799
CD-3704 100 CD Duplicator **NEW!** ..... **CALL!**
CD-3707 200 CD Duplicator **NEW!** ..... **CALL!**

** Offer good only on select MediaFORM CD-ROM Duplicators. Call for details.*

CD-R PRINTERS

PRIMERA SIGNATURE II COLOR CD PRINTER $1,195

The Signature II CD Color Printer from PRIMERA is the perfect way to add a professional touch to your CD-Rs.

PRIMERA TECHNOLOGY, INC.

CD-R MEDIA

DiscWRITE Blank *(no logo)* 50 pk w/ jewel case $69.99
Mitsui CD-R *(silver)* 25 pk w/jewel case..... $49.99
Mitsui CD-R *(silver)* 100 pc spindle $159.99
Ricoh Printable CD-R (white or champagne) 100 pc bulk $159.99
Ricoh CD-RW 10 pk..... $99.99
Ricoh CD-R *(platinum)* 100 pk w/ jewel case $99.99
AMC DiscWRITE *special formulation* CD-R Pens 4 pk..... $6.95

Check our Website for other types, quantities & specials!

CD-ROM SERVICES

AMCIIS

AMC's Imaging and Information Services division can provide you with:

• Mastering • Copying • Duplication • Printing • Packaging • Silkscreening

Call us at 888.454.0100
or visit our Website at www.amciis .com

iMAC PERIPHERALS

FOR USB - CALL AMC!

AMC has a complete selection of USB peripherals for your iMac, including scanners, printers, digital cameras, joysticks, hubs, cables, etc.

Call or visit our Website at www.amc-direct.com for our complete USB selection!

AMC Direct

Advanced Multimedia Concepts • P.O. Box 3456 • Redmond, Washington 98073-3456 • 425.558.3100 • Fax: 425.861.8391

AD CODE: MW0399

www.mwm.amc-direct.com

Macworld SHOPPER

If you want the best prices and service around, call us today!

BUY/SELL/TRADE

MediaGuide

BUY/SELL/TRADE

Prices Listed Reflect a 3% Cash Discount

OLDER MACS

Mac Plus 4/0	$49	SE 4/20 (800k)	$49
SE FDHD 4/40	$89	Classic 4/40	$89
SE/30 8/80	$129	Classic II 4/40	$119
Mac II 4/40/Video	$39	LC 10/40	$79
IIcx 8/40/Video	$79	IIsi 5/350	$79
LC II 10/80	$89	LC III 8/80	$109
IIci 8/350	$99	IIx 8/350/Video	$79
IIvx 8/350	$119	IIfx 8/160	$129

QUADRA & CENTRIS

Perf 475 8/230	$189	C610 16/500	$179
Q605 8/230	$199	Q610 16/500	$199
Q630 8/250	$249	C650 16/500	$299
Q650 16/500	$349	Q700 20/500	$299
Q800 16/500	$379	Q900 20/500	$399
Quadra 660AV 16/500/CD			$399
Quadra 840AV 16/500/CD			$499

POWER MACS

6100/60 8/500/CD/DOS	$449
7100/66 8/500/CD	$459
7100/80 8/500/CD	$499
8100/80 8/500/CD	$549
7200/75 8/500/CD	$499
7200/90 8/500/CD	$549
7500/100 16/1gig/CD	$699
8500/120 16/2gig/CD	$799
Many other Power Macs in stock	CALL!!

POWERBOOKS

PB 140 4/40	$199	PB 170 8/80	$249
Powerbook 160 8/80/14.4			$299
Powerbook 165 12/120/14.4			$349
Powerbook 165c 12/120/14.4			$429
Powerbook 180 8/120/14.4			$449
Powerbook 180c 14/160/14.4			$529
Powerbook Duo 230 12/160/14.4			$199
Powerbook Duo 270c 12/240/14.4			$399
Powerbook 520 12/240/19.2			$529
Powerbook 520c 12/240/19.2			$599
Powerbook 540c 12/320/19.2			$699
Powerbook 1400's & 3400's			BEST PRICES!

MONITORS

Apple 12" Mono	$79	Apple 12" RGB	$99
Apple 13" RGB	$149	Apple 14"	$179
Apple 15" MS	$249	Apple 16" RGB	$279
Apple 17" MS	$349	Third Party	$CALL

PRINTERS

Imagewriter II	$99	Laserwriter	$99
Laserwriter IInt	$199	LW IIntx	$249
Laserwriter IIf	$299	LW IIg	$399
LW Pro 630	$699	LW16/600	$899
Laserwriter Pro 810			$999
Super Match Dye Sub printer			$499
HP Deskjet 1600c (new)			$999
HP Deskwriter (no ink)			$79

MISCELLANEOUS

1.44 floppy drives	from $69		
Apple 2x tray-loaded CD-ROM (int)			$49
Apple 730mb 2.5" Powerbook SCSI HD			$249
New external HD case w/cable			$49
256K L2 cache for 6100/7100			$9
6100 486/66 DOS card (w/cable & sw)			$45
Syquest Cartridges 44/88/200			$9/$19/$49
PrecisionColor Pro 24x NuBus video			$199
Curtis CommandCenter Plus Surge Prot			$49
1MB 30-pin SIMM	$5	4MB 30-pin SIMM	$15

SOFTWARE

MS Excel '98	$98	MS Office '98	$249
QuicKeys 3.0	$10	Tons more	CALL

POWERBOOK ACCESSORIES

Powerbook video cable	$25
Powerbook HDI29 to DB25 SCSI adaptor	$29
Powerbook 5xx internal floppy drive	$99
Powerbook 1xx battery charger	$19
Powerbook Nylon carrying case	$19
Powerbook Leather carrying case	$59
Powerbook Duo floppy drive	$119
Color Lid upgrade for Duo Dock	$29
Duo Dock powersupply	$49
Apple 14.4 modem for PB Duo	$79

Logic boards, Power supplies, RAM — CALL!
Parts, Accessories, other CPUs — CALL!

SUPER SPECIALS!!

Apple 1gig 3.5" SCSI HD...$99

New Global Village modems:
Powerbook 1xx 14.4.....$39
Powerbook 1xx 28.8.....$99
Powerbook 5xx 19.2.....$59

FWB SCSI-II Jackhammer PCI...$199
(SCSI throughput up to 40mb/sec)

Mac IIci 8/350.....$99
Duo Dock (w/color lid).....$99

BUNDLE SPECIALS

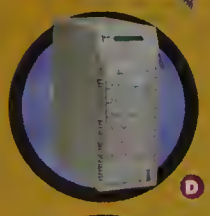
(Listed CPU plus an Apple 13" RGB, KB, mouse)

IIci 8/350	$199	IIsi 9/350	$199
IIcx 8/350	$179	IIvx 8/350	$229
Centris 610 8/730			$299
Quadra 630 20/250			$299
Quadra 650 16/730			$429

Toll free: (888) 466-2271

Fax: (303) 571-5020 • Local & Int'l: (303) 571-1900 • Hours: M-F 8-6, SAT 10-5 MST • 777 N. Santa Fe Dr., Denver, CO 80204
Sales E-mail: Sales@MediaGuide.com • Purchasing E-mail: Purchasing@MediaGuide.com • http://www.mediaguide.com

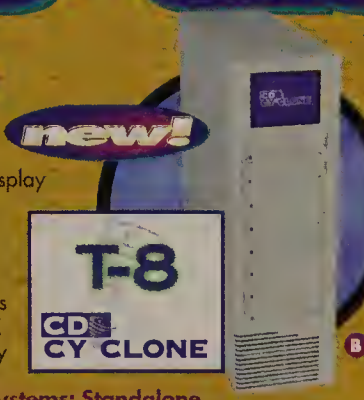
Editors' Choice: AVD



CD Duplication

The T-8 is More Than An 8-Drive CD Duplicator!

- Interactive Touch Screen Display
- Print Directly to Your CDs
- Network Connectivity
- DAT Import
- Audio Capture/Playback
- Expandable up to 16 drives
- Upgradeable to 6X and 8X
- CD Premastering Capability



To celebrate Macworld's selection of Mediastore's AVD Yamaha CD-RW drive as Editors's Choice, we'de like to uncork a low price and share it with our friends!

MULTIDRIVE Duplication Systems: Standalone

A	SEE! CD CyClone One-2-One duplicator - fast copy of one CD	$1495
B	SEE! CD CyClone T-8 (8 drive duplicator) - touchscreen	$6995
C	SEE! CD CyClone T-30 (30 drive duplicator) - 120 CDs/hour	$23995
	MediaFORM 4300 CD-2-CD + HD Duplicator	$2695
	MediaFORM 5300 3-CD-Recorder Duplicator	$3595
D	SEE! MediaFORM 5900 8-CD-Recorder Duplicator	$6295

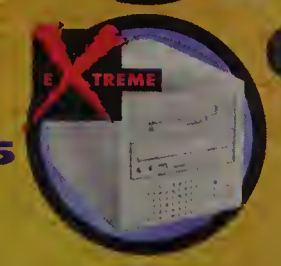
AUTOLOADER Duplication Systems: Standalone

	MediaFORM 2701 50-CD Duplicator - affordable autoload	$4495
	MediaFORM 3704 100 CD Duplicator - 4 drives!	$7515
E	SEE! MediaFORM 3707 200 CD Duplicator - 7 drives!	$10980
	Champion 150-CD Duplicator - upgrade to two drive system!	$5999
	Cedar CD Duplicator & Printer all in one unit - print + dupe!	$7685

AVD CD Recorders

AVD Kits	internal	external
Panasonic 4X/8X	$249	$299
Teac 4X/12X	$299	$349
Teac 6X/24X	$349	$399
Yamaha 4X/4X/16X CD-RW	$399	$449
Bare internal Panasonic 4X/8X CD-R	$235	Online Only

MW EDITORS' CHOICE



Extreme Jaz 2/CD-R Duos

the great JAZ 2GB giveaway!

Includes 1GB cartridge ~ or get a 2GB cartridge for only $20 more.

Extreme Kits

Panasonic 4X/8X + Jaz 2GB	$699
Teac 4X/12X + Jaz 2GB	$749
Teac 6X/24X + Jaz 2GB	$799
Yamaha 4X/4X/16X CD-RW + Jaz 2GB	$849

Picasso CD COLOR PRINTER

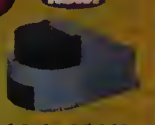
Includes 10 free pieces of printable CD-R media!

$1299

CD Labeling

50-CD autoloader attachment to Picasso printer.

$1395



Ad Code: BC-101

ORDER TOLL FREE!
800.555.5551
open M-F: 7 a.m. - 6 p.m. (PST) • intl ph. 714-974-5551 • fax. 714-279-1690

Product Prices and Availability Subject To Change

Media As Low As 99¢

MW Booth #3443

MEDIASTORE
www.mediastore.com

iCN

www.icni.com

For Our Most Current Prices Please Visit Our Web Site

HUGE SELECTION OF MAC, TOSHIBA, IBM, COMPAQ AND SPARE PARTS IN-STOCK

PowerMac 7200
90MHz/8RAM/500HD/CD
$459*

Apple Monitor
17" 1710 Vision
$329

Printer
StyleWriter
2500 **$189**

PowerMac 7100
80MHz/8RAM/500HD/CD
$359*

PowerBook 540c
8Ram/320HD/Modem
$499*

Apple Internal
28.8 Modem
For Performa Series **$39**

Apple 1.44 Floppy
Drive (Manual Insert)
$59

PowerMac 9500
200MHz/16RAM/2GB/CD/VC/KB
$1095*

POWER MACS
RECONDITIONED

9500	200Mhz	16/2GB/CD/VC/KB	$1095
9500	200 MP	32/2GB/CD/VC/KB	$1249
9500	132Mhz	16/1GB/CD/VC/KB	$999
8600	250 Mhz	32/4GB/24xCD/KB	$1495
8600	200 Mhz	32/2GB/12xCD/KB	$1390
8500	180Mhz	16/1GB/CD/KB	$989
8500	132Mhz	16/1GB/CD/KB	$849
7600	132 Mhz	16/1GB/CD/KB	$679
7500	100 Mhz	16/1GB/CD/KB	$639
7300	180 Mhz	16/2GB/12xCD/KB	$979
7200	120 Mhz	16/1GB/CD/KB	$599
7200	90Mhz	8/500MB/CD/KB	$469
6500	275Mhz	32/6GB/24XCD/KB/MOD	$1049
6500	250Mhz	32/4GB/24XCD/KB/MOD	$1029
6500	225Mhz	32/3GB/12XCD/KB/MOD	$939
5500	225Mhz	32/2GB/ETH/24XCD/Mon15"	$1199
4400	200Mhz	32/2GB/12XCD/KB	$799

POWERBOOKS & DUOS
RECONDITIONED

3400c	240Mhz	16/3GB/12XCD/Modem/ETH	$1779
3400c	200Mhz	16/2GB/6XCD/Modem/ETH	$1739
3400c	180Mhz	16/1GB/6XCD	$1439
1400cs	166Mhz	16/1GB/12xCD	$1379
1400c	133Mhz	16/1GB/8xCD	$1279
1400cs	117Mhz	12/750MB	$889
5300ce	117Mhz	32/1GB	$899
5300c	100Mhz	16/750MB	$699
5300cs	100Mhz	8/500MB	$649
540c	33Mhz	8MB/320MB/Modem	$499
520c	33Mhz	4MB/160MB/Modem	$459
180c		4MB/160MB/Modem	$399
170		4MB/120MB	$299
DUO 2300c	100Mhz	20MB/1GB/Modem	$749
DUO 280c	33Mhz	4MB/120MB/Modem	$359
DUO Dock Plus			$179

POWERMACS (NUBUS)
RECONDITIONED

8100	110Mhz	16/1GB/CD	$679
8100	100Mhz	16/700MB/CD	$579
8100	80Mhz	16/500MB/CD	$529
7100	80Mhz	8/250MB/CD	$359
6100	66Mhz	8/250MB	$309

APPLE HARD DRIVES

Hard Drive 1.2 GB	3.5"	SCSI	$99
Hard Drive 1.6 GB	3.5"	IDE	$95
Hard Drive 1.1 GB	2.5"	SCSI (PowerBook)	$249
Hard Drive 750 MB	2.5"	IDE (PowerBook)	$95

PERFORMAS
RECONDITIONED

6400	180MHz/16/1.6GB/Mod/CD/KB		$799
6360	160MHz/16/1GB/Mod/CD/KB		$749
5400	180MHz/16/1GB/CD/Mon 15"		$1095
5200	75MHz/8/500MB/CD/Mon 14"		$695

UPGRADES
With Original Apple Logic Board

PM 8500 LOGIC BOARD UPGRADE FROM Q800, Q840AV, PM 8100 TO 8500	$695
PM 7600 LOGIC BOARD UPGRADE FROM PM 7200 TO 7600	$449
DUO UPGRADE 200 Series To 2300	$429
200/233MHz Processor Upgrade	$139/$199
132MHz/180MHz Processor Upgrade	$29/$109

CD-R / CD-RW

Yamaha	4x4x16 CD-RW	Int. $335/Ext. $449
TEAC	4x12 CD-R	Int. $235/Ext. $349
Panasonic	4x8 CD-R	Int. $235/Ext. $339
Caravelle	8x20 CD-R	Int. $499/Ext. $599

External Drives include choice of Toast/EZ Creator Media Cable & Terminator

TAPE DRIVES
DAT, Ait, DLT & Media

Sony SDT 7000	4/8GB	Int. $469/Ext. $589
Sony SDT 9000	12/24GB	Int. $745/Ext. $825
Sony AiT	25/50GB	Int. $1549/Ext. $1749
Quantum DLT4000	20x40GB	Int. $1495/Ext. $1649
Retrospect	4.0 Software	$99
Dvanced Drives Kit		$85
DAT 120m	4/8GB	$11
DAT 125m	12/24GB	$23
DLT Cartridge		$76
AiT Cartridge		$76

1.800.472.4921
Fax: (310) 445-6611 Tel: (310) 445-6600
FAX TOLL FREE FROM JAPAN: 00-31-114211
11755 Exposition Blvd., Los Angeles CA 90064

MONITORS

APPLE VISION 850 AV 20"	$1299
APPLE VISION 850 20"	$1099*
APPLE 20" Mult Display	$595*
APPLE VISION 750 17"	$399*
APPLE 15" AV Multi	$259*
APPLE Vision 1710 17"	$299*
APPLE RGB 13"	$99*
NEC 15" E500/ 17" E700	$279-529
NEC 21" P1250/E1100	$1089-969
SONY 15" 100ES/15"100GS	$239-279
SONY 17" 200ES/17"200GS	$389-485
SONY 21" 500PS/19"400PS	$1195-759
VIEWSONIC 15" E655/ G653	$229-235
VIEWSONIC 17" G771/ EA771	$389-399
VIEWSONIC 20" P810/ P815	$1049-1195
OPTIQUEST 15" Q53-Q51	$185/179
OPTIQUEST 17" V75-V73	$399/$345
OPTIQUEST 19" V95	$499
HITACHI CM 620 17"/CM 630 17"	$395-469
HITACHI CM 751 19"	$649
HITACHI MC 801 21"/MC 801HR21"	$1079-1295

PRINTERS

APPLE LaserWriter 12/640PS	$879*
APPLE LaserWriter 16/600	$899*
APPLE LaserWriter IINT	$239*
APPLE LaserWriter 8500	$1559
APPLE LaserWriter 2500	$189*
APPLE Color StyleWriter 4500	$249*
APPLE Color StyleWriter 6500	$299*
EPSON Stylus 800	$235

VIDEO CARD

ATI EXCLAIM VR 2MB PCI Video Card W/In-Out	$99
ATI EXCLAIM VR 2MB VRam Upgrade	$49
ATI EXCLAIM 3D 8MB Rage PCI Video Card	$159

USB

USB	Hard Disk 4.3GB	$CALL
USB	Hard Disk 9.1GB	$CALL
USB	4x4x16 CDRW	$CALL
USB	Zip	$145
USB	Hub Drive	$45

Please Call For Most Recent Pricing

Prices Subject to Change Without Notice • All Prices reflect 3% Cash Discount • * Refurbished
ICN Is Not An Authorized Apple Dealer • All Trademarks Are Property Of Their Respective Companies.

Mac Pro Systems & Software
Since 1988

Buy • Sell • Trade • Upgrade • Repair
New • Used • Refurbished

Small Ad **Lowest Prices**

Any Ad is a Mac Pro Ad
Check out our Wholesale Specials @
www.mac-pro.com

800-525-3888
fax: 408-369-1205

BUY SELL TRADE

USED MACINTOSH!

ALL APPLE EQUIPMENT AVAILABLE!

- PowerBooks
- PowerPCs
- G3s
- 68040 & 68030 MACs
- Large Monitors

ALL QUALIFYING PO's WELCOME

The Computer Exchange **800.304.4639**

sales/service: 404.355.5144 fax: 404.355.5461
500 Bishop Street • Suite E-3 • Atlanta, GA 30318

www.mistermac.com

Choose 423 at www.macworld.com/getinfo

Save On Reconditioned Macs & Peripherals From DataTech

$599 PowerMac 7500 24/1G with CD

PM 7200/75 24/500/CD $399
Apple Twisted-Pair Transceiver $25

Centris 650 8/230 ..... $149
Asante NuBus Ethernet Card $29
Apple DuoDock $89

Older Macs		PowerMacs		Printers	
Mac IIci 8/80	$59	6100/66 16/350/CD	$349	LaserWriter IInt	$179
Mac IIvx 8/80	$99	7100/66 16/230/CD	$349	LaserWriter IIntx	$229
Centris 610 8/230	$149	7100/80 24/500/CD	$449	LaserWriter IIf	$329
Quadra 610 8/230	$179	8100/110 24/2GB/CD	$549	LaserWriter Select 360	$599
Quadra 650 8/230	$229	7200/75 16/500/CD	$399	LaserWriter Pro 630	$649
Quadra 800 8/230	$229	7200/90 16/500/CD	$499	LaserWriter 16/600	$749
Monitors		7500/100 24/1G/CD	$599		
Apple 14" Trinitron	$149	7600/120 24/1G/CD	$699		
Apple 15" MultiScan	$199	8500/120 32/2GB/CD	$799		
Apple 17" MultiScan	$299	9500/132 32/2GB/CD	$899		

- *All CPUs include mouse*
- *6-month warranty*
- *VISA & MasterCard accepted*

To Order Call
1-800-281-3661
DataTech
REMARKETING, INC.
Tel: 615-860-4422
Fax-On-Demand: 615-860-0109
Fax: 615-860-0390
Web: www.datatech-rmkt.com
471 Myatt Dr., Madison, TN 37115

D-2-99

think mac
-liquidation-

615-904-1070

Macintosh CPUs

Macintosh LCII 4/80	$79
Macintosh IIsi 5/80	$99
Macintosh Quadra 900 16/500	$399
Power Mac 6100/66 24/700/CD/DOS	$449
Power Mac 7100/80 24/700/CD	$499
Power Mac 7100/80AV 24/700/CD	$549
Power Mac 8100/100 24/700/CD	$599
Power Mac 8500/120 32/2GB/CD	$799
Power Mac 8500/150 32/2GB/CD	$849

Monitors

Apple 12" RGB Display	$99
Apple 14" Color Display	$149
Apple 15" Multiscan Display	$199
Apple 17" Multiscan Display	$249
Apple Multiscan 1705 Display	$299
Apple 20" Multiscan Display	$549

Powerbooks

Apple Powerbook 180 12/120/14.4	$449
Apple Powerbook 520C 12/160/19.2	$499
Apple Powerbook 540C 12/320/19.2	$599

Printers

Apple Color Stylewriter 1500	$179
Apple Laserwriter IIF	$299
Apple Laserwriter IIG	$599
Apple Laserwriter Select 360	$599
Apple Laserwriter Pro 630	$699
Hewlett Packard 4MV (11x17 Laser)	$1049

MacWorld Expo Special !!!
Get $100 Off Your Next Mac
System Bundle Purchase !!!

We accept all major credit cards. *1035 Samsonite Blvd. Suite C • Murfreesboro, TN 37129 • PH: 615-904-1070* *We accept all school and gov't purchase orders.*

800-951-1230
MACBASE.COM

Int'l (714) 428-0777 University, School, Gov. & Fortune 1000 P.O.'s Accepted! FAX (714) 428-0778

RECONDITIONED

PM 7200/75	8/500/CD	359
PM 7200/90	8/500/CD	449
PM 7600/132	16/1.2G/CD	799
PM 8500/150	16/1G/CD	899
PM 9500/233	16/2G/CD	1199
PM 8100/110	16/1G/CD	629
PM 8100/100	16/1G/CD	549
PM 7100/80	8/500/CD	399
PM 6100/60	8/230/CD	319
CALL FOR OTHER SYSTEMS		

NOTEBOOKS

G3/233	32/2G/CD/12.1 TFT	1999
G3/233	32/2G/CD/14.1 TFT	2329
G3/250	32/4G/CD/13.3 TFT	2199
G3/266	64/4G/CD/14.1 TFT	2825
G3/300	64/8G/CD/14.1 TFT	4159
G3/300	64/8G/DVD/14.1 TFT	CALL
1400C	133 or 166	CALL
DUO DOCK	II PLUS	179
EMATE 300 / NEWTON		CALL
540C	20/500/MDM	CALL

REFURBISHED

PB 1400C	16/1.3GB/CD	1259
PB 3400C/180	16/1.3G/CD	1399
PB 3400C/200	16/2G/CD	Call
PB 3400C/240	16/3G/CD	1679
6360	16/1.2G/CD	649
6400/180	16/1.6/CD	659
PM 5500/225	32/2G/CD	Call
PM 8600/300	32/4G/CD/ZIP	Call
PM 9600/300 OR 350		Call
Apple 15AV		269
Color Stylewriter 4500		CALL
Color Stylewriter 6500		CALL
LaserWriter 12/640		799
LaserWriter 8500		1299

NEW SYSTEMS

G3MT/333	128/9UW/CD	2779
G3MT/300	64/8G/CD/ZIP	2179
G3DT/300	64/6G/CD/ZIP	1839
G3 DT/233	32/4G/24XCD	1259
G3 DT/266	32/4G/24X/	1449
G3 DT/266	32/4G/24X/Zip	1549
4400/200	PC COMPATIBLE	999
5400/180	16/2G/CD	CALL
8600/300	32/2G/CD/ZIP	CALL
9600/300	64/4GB/24XCD/ZIP	CALL
9600/350	64/4GB/24XCD/ZIP	CALL

1000'S OF PRODUCTS IN STOCK. CALL US FOR LATEST PRICING!

FedEx. We ship Worldwide!

* indicates refurbished product. MacBase is not an Authorized Apple Dealer. Returns subject to restocking fee. Prices reflect C.O.D. or CASH and are subject to change without notice. P.O.'s subject to approval.
All trademarks are property of their respective companies.

CALL THE MAC EXPERTS!

Your one-stop source for everything Macintosh®. Complete solutions and expert advice our specialty!
Call for the absolute lowest prices and immediate delivery on over 30,000 Mac® products!

If there could be only one Macintosh® reseller in the world, why you'd want it to be PowerMax:

- Our salespeople are some of the most knowledgeable in the business. They're not order takers and they don't push for a one time sale. Well over half our business comes from repeat and referred customers!
- We have 800 line tech support for as long as you own your computer!
- We load over *160 megabytes* of useful software on every computer.
- Every Mac® system is thoroughly bench tested, and then personally verified and approved by your specific consultant.
- We will customize your computer any way you need, and always with an exact description as to what we're Including.
- We give you a free mouse pad with every system.
- We have no voice mail– there's always a human being on the other end of the line– for tech, sales *and* management.
- We answer the phone: "how can we help you?" not "may I take your order?"
- We live in Oregon, where there is no sales tax and the people are friendly and polite!
- Even customized systems usually ship within 24-48 hours.
- Government and corporate purchase orders normally approved the same day.
- We take trade-ins, and we sell every style of quality Macintosh® possible, from extreme hi-end to quality used Macs®.
- *We have competitive prices on over 30,000 Macintosh® items.*
- All we do is Macintosh®– our company is run entirely on Macs®.
- We offer you choices: buy over the phone, over the internet, or in person, all with the same great prices and super service!

The other guys

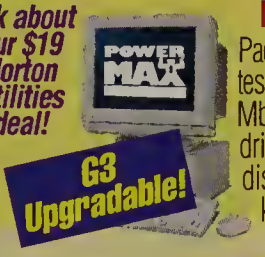
- They sell you a box.
- If you have a problem, they tell you to call the manufacturer. And then you get to wait on hold for a long, long time.

Toll Free tech support for as long as you own your computer!

Package 61W993

Package includes pre-tested 6100/66 with 24 Mb RAM, 350 Mb hard drive, a new 14" color display and an extended keyboard. All this for only **$499!!** (Add just $200 to upgrade to an Apple 17" display!

Ask about our $19 Norton Utilities deal!

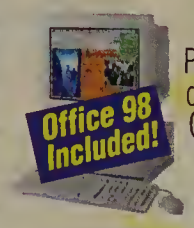


Package 76W9923

Package includes pre-tested 7600/132 with 32 Mb RAM, 1 Gig hard drive, a new 15" color display and extended keyboard. Only **$949!!**

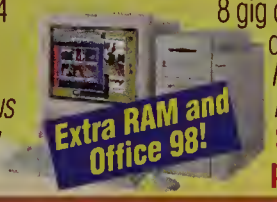
Only while supplies last

Pictures may not match monitor in package



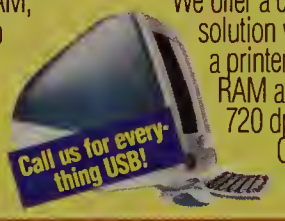
Package 26W993

PowerMac® G3 266 desktop, **64** mb RAM, 4 Gb Drive, 24x CD, 15" Color Display *and Microsoft Office 98 plus Premiere 4.21LE!* Only **$1888**, or just **$76 per month!**



Package 30W993

PowerMac® G3 300 MHz Tower w/**128** Mb RAM, 8 gig drive, 24x CD, internal Zip drive, 17" display, *and Microsoft Office 98 plus Premiere 4.21LE!* Only **$2788,** or just **$112 per month!**



iMac Package IW993

We offer a complete iMac® solution with more RAM & a printer! Includes 64 Mb RAM and a new Epson 720 dpi color printer. Call for the new lowest price ever!

We're Video Production Experts!

Set up your own video production studio with this awesome system designed by PowerMax, your nationally authorized Media 100 source!

Complete Media 100 Video Workstation!

Package # CB19768

*System includes: G3 333MHz Tower, 256 Mb RAM, two 9 Gb Ultra-Wide hard drives with Express Raid striping software, Media 100 QX card w/Adobe Premiere and Adobe After Effects, internal Jaz 1 Gb drive, and a 20" Trinitron® display. All for only **$7,779**, or just **$279** per mo.*

We're Used Mac® Experts!

We'll take your Macintosh® computer in trade toward the purchase of any product we sell! Call one of our expert Mac® consultants for complete details! Or call for our complete inventory of pre-tested used machines– some of today's best Mac values!

We Offer Exclusive Blowout Deals!

NOMAI 540MB REMOVABLE DRIVE BLOWOUT!

Five times the capacity of a Zip, as fast as a hard drive, and at a lower price! Features 10 ms. seek time and sustained data transfer rate between 3 & 5 mb per second.

Just a sample of the special deals we can offer:

Pwbk 180C 14/160 w/bag	$399	PwrBase 240 16/2 Gb Twr	$699
7100/80 8/500/CD	$399	All-in-1 5260 16/800/CD	$729
7100 /80 24/500	$399	600/132 16/Gig/CD	$729
6100/66 16/350/CD	$399	Pwbk 5300C/100 16/750	$749
7200/90 16/500/CD	$499	8500/120 32/Gig/CD	$849
Duo 2300 20/1.2	$499	iMac 32/4 Gb/24x	$1149
PwrBase 240 16/2 Gb LP	$679	9500/233 32/2 Gb/CD	$1488
7500/100 16/1 Gb/CD	$688	*Internal floppies for $99! Need other Mac® parts? Call us!*	
7500/100 24/500/CD	$688		

We're Monitor Experts!

Look at these new displays from PowerMax!

# **PM15-501** 25 mm dot pitch- best at 1024 x 768 @ 85Hz	$249
# **PM17** 25 mm dot pitch- best at 1024 x 768 @ 85Hz	$449
# **PM17TE+** 25 mm dot pitch- best at 1152 x 870 @ 75Hz	$549
# **PM20T** 30 mm dot pitch- best at 1152 x 870 @ 75Hz	$749
# **PM20T+** 25 mm dot pitch- best at 1152x900 @ 76Hz	$888
# **PM1000T 21" Trinitron!** 25 mm dot pitch up to at 1600x1280 @ 80Hz	$1188
# **PM4000T 24" Trinitron!** 25 mm dot pitch up to at 1920x1200 @95Hz	$1999

Perfect Trinitrons® from 15" to 24"!

PowerMax Trinitron® monitors are designed specifically for the rigorous demands of the Macintosh®. They ship complete with Mac®-ready cables and adapters, a *five* year warranty, and our satisfaction guarantee: if the monitor is not just right, we'll replace it for you!

Possibly the World's Best Selection of Macintosh®!

4400/200 16/2 Gb/24x	$799	G3 300 Tower 64/24x/Zip	$2149
Refurb 6500/225 32/3 Gb/12x	$949	G3 300 Tower 64/8 Gb IDE/24x/Zip	$2299
StarMax 5000/250 32/2.5/16x w/5 year war	$979	G3 333 Tower 128/9 Gb UW SCSI/24x	$2839
StarMax 5000/300 32/4 Gb/16x/Zip&5 yr w.	$1049	Pwbk G3 233 32/2 Gb/20x/12.1 Dual Scan	$1799
New 6500/250 32/4 Gb/12x/Zip	$1079	Pwbk G3 233 32/2 Gb/20x/56k/12.1 Active	$2049
New 6500/275 32/4 Gb/12X Creative Studio	$1088	Pwbk G3 233 32/2 Gb/20x/56k/14.1 Active	$2349
New 9600/300 64/4 Gb/CD/Zip- 6 Slot Mac!	$2848	Pwbk G3 266 64/4 Gb/20x/56k/14.1/Active	$2949
Ref 9600/350 64/4 Gig/24x- 6 Slot Mac!	$2888	Pwbk G3 292 64/8 Gb/20x/FD/56k/14.1 Act	$4139
iMac® G3/233 21/4 Gb/ Rev B	$1279	Pwbk G3 300 64/8 Gb/DVD/56k/14.1 Act	$4199
G3 266 Desktop 32/24x/Enet	$1388	Ref Pwbk 5300C/100 16/750	$899
G3 266 Desktop 32/24x/4 Gb IDE/Enet	$1499	Ref Pwbk 1400CS/117 12/750	$899
Ref G3/266 Tower 32/6 Gb IDE/CD/Zip	$1888	Ref Pwbk 1400C/133 16/1.3/CD	$1288
G3 300 Desktop 64/24x/Zip	$1788	Ref Pwbk 3400C/180 16/1 Gb	$1399
G3 300 Desktop 64/6 Gb IDE/24x/Zip	$1899		

Ask about new pricing for 1999!

POWER MAX
Knowledge is Power

We're out of room! Call for great prices on RAM, Powerbooks®, software, laser printers, scanners, CD-ROMS, video cards, storage products, color printers, media, printing sup

800-613-2072

Local: (503) 624-1827 • Fax (503) 624-1635
email: sales@powermax.com

Prices subject to change without notice. Prices reflect cash discount. Credit card orders strictly verified against fraudulent use. With use of credit card as payment customer acknowledges that some products are subject to final sale. Many prices are limited to stock on hand. All brand or product names are registered trademarks of their respective holders.

OR ORDER ON LINE AT WWW.POWERMAX.COM!
OVER 30,000 MAC® ITEMS AT YOUR FINGERTIPS!

We accept educational and corporate purchase orders, and are experts in financing for virtually any size business!

Sales: 818-787-3509
[illegible] Van Nuys Blvd Van Nuys, CA 91405
e-mail:csales@pacificnet.net
* = Factory Refurbished

CompuMall® Your Premier Computer Source

0399 Fax: 818-787-2111
Visit Our Site for the Latest Deals!
Apple, MAC, iMac, PowerMac, & PowerBook, are registered trade marks of Apple Computers Inc..
All prices are subject to prior sale & change without notice!

Faster Macs... Hot Deals
www.appledeals.com

PowerMacs

iMac G3/233	32/4GB, 24xCD, USB, 15"AV	$1095
G3/333 Tower	128/9GB U-W, 24xCD	$2495
G3/300 Tower	128/9GB U-W, CD, Zip,AV	$2445
G3/300 Tower	64/4GB, 24xCD, Zip,AV	$1995
G3/300 Desktop	64/6GB, 24xCD,Zip	$1695
G3/300 Desktop DVD	64/4GB/DVD	$1895
G3/266 Desktop	64/4GB, 24xCD	$1295
G3/233 Desktop	64/4GB, 24xCD	$1145
4400/200	64/2GB, 12xCD, 256K Cache	$695
4400/200DOS	64/2GB, 12xCD, 256K Cache	$795
14"/15"/17" Monitor		$89/129/249

Apple 14"/15" DEMO -----$115/149
Apple 17"/20" DEMO -----$185/499
Used Printers(Epson, Apple, HP)-CALL

SOFTWARE

Adobe
Photoshop 5.0 / Illustrator 8.0 .....$549/339
PageMaker 6.5 / Acrobat 3.0.1 ....$549/159
PageMILL 3.0 / StreamLine 4.0 .....$89/149
Dimension 3.0 / ImageReady 1.0 ..$139/189
Premiere 5.0 / After Effects 3.1 .....$599/599
After Effects Production Bundle $1395

Quark QuarkXpress 4.0 .....$679

MetaCreations
Painter 5.5 w/KPT ..$229
Painter 3D $459
Expression $189
Bryce 3D $159
Kai's PowerTools 5.0 ..$95

Microsoft
Office 98 MAC $349
Excel 98 MAC $179
Word 98 MAC $159

Get Cash or Credit for your Used Mac Systems!
CALL Mike @ (818) 609-7012 Ext.116

PowerBookS

G3/300 DVD	64/8GB, DVD, 56K,14.1"	$4095
G3/300	64/8GB, 20xCD, 56K,14.1" TFT	$3645
G3/292	64/8GB, 20xCD, 56K, 14.1" TFT	$3295
G3/266	64/4GB, 20xCD, 56K, 14.1" TFT	$2749
G3/250	64/4GB, 20xCD, 56K, 13.3" TFT	$2295
G3/233	64/2GB, 20xCD, 56K, 14.1" TFT	$2295
G3/233	64/2GB, 20xCD, 56K, 12.1" TFT	$1895
2400c/180	32/1.3GB, CD, 10BT	$1195
3400c/200	64/2GB, CD, 10BT, 33.6*	$1395
5300cs/100*	32/500MB, Free Batt./MDM	$695*
Duo 2300c	40/750MB.with Floppy/Adptr.	$895*
Duo Floppy / Adapter		$175

Trade-in Your PowerBook
CALL 818-609-0466

Digital Cameras

Agfa ePhoto 1280	$499
Agfa ePhoto 1680	$699
Kodak DC 260	$699
Olympus D600-L	$699
SONY Movica FD8-1	$739
SONY Movica FD9-1	$899

SCANNERS

AGFA DuoScan T1200x	$599
AGFA DuoScan	$2199
AGFA DuoScan 2000	CALL
Umax Astra 1220S 8.5 x11	$159
Umax Astra 2400S 8.5 x14	$449
Umax PowerLook 2000	CALL

www.appledeals.com
Toll Free 1-800-816-7307

CD-R Drives/Video & Graphic Cards

Panasonic 4x8 CD-R Ext. ..$299
Yamaha 4x4x16 CDR-W Ext. $399
10 Pack Blank CDR Media ...$12
Blank CDR-W Media $9

iXMICRO
Twin Turbo 128M4/128P8 ....$199/289
ix Ultimate Rez 2D/3D $429
ix RoadRocket (for PowerBook) $249

www.PowerBook1.com
Secure Online Ordering!
MCE POWERBOOK PRODUCTS
Your Source for all PowerBook Upgrades and Accessories

POWERBOOK PRODUCTS
MCE PowerBook Drives
For use in PB 3400, 2400, 1400, 5300, 190, 150 & Duo 2300

MobileStor 2100t	2.1 GB	TOSHIBA	$ 199	3yr
MobileStor 3200h	3.2 GB	HITACHI	$ 249	3yr
MobileStor 4000i	4.0 GB	IBM	$ 309	3yr
MobileStor 4300i	4.3 GB	IBM	$ 319	3yr
MobileStor 6400i	6.4 GB	IBM	$ 449	3yr
MobileStor 6400t	6.4 GB	TOSHIBA	$ 429	3yr
MobileStor 8000i	8.0 GB	IBM	$ 679	3yr

MCE PC Card Diskeeper
Use our PC-card case for your original IDE drive and save your megabytes
ONLY $129

iX MICRO Road Rocket
24bit Video Output for PB G3 series
ONLY $299

All MCE PowerBook hard drives include the MCE PB Hard Drive Installation Kit which includes an installation manual, torx tool*, mounting bracket* and anti-static wrist strap.
*as needed

VST PRODUCTS

	Zip Drive	Super Disk	Charger	Battery	Auto Adapter
PB 1400	$219		$99	$119	$79
PB 5300/190	$239		$149		
PB 3400	$239		$149	$149	$79
NEW G3 Series	$249	$219	$159	$199	$79

newertech

NUpowr 1400/G3 250MHz	$ 759
NUpowr 1400/G3 216MHz	$ 629
NUpowr 2400/G3 240MHz	$ 799
VIEWpowr 1400 (16-bit video)	$ 239
Bookendz Dock for 34/24/1400	$179/229 (G3)

MCE powrUP 1400/G3 Bundle:
Includes: NUpowr 1400/G3 250MHz/1MB cache
MobileStor 6400i 2.5" IDE HD $ 1149

Kritter Cam $249
CapSure Card $129
640x480, 30fps
Video for 3400/2400/G3

O'Grady's Macworld Best of Show Pick
MadsonLine AC adapter for PB 3400, G3, 2400 &1400
only $85
half the size/weight of Apple's adapter!

MEMORY
Viking Components — Apple Recommended

	32MB	48MB	64MB	128MB
PB G3 Series	$99		$149	$239
PB G3 (3500)	$119	$159	$199	$259
PB 3400	$119	$169	$199	$329
PB 2400	$99		$149	
PB 1400	$119	$189		
PB 5300	$119	$149		
PB 190	$119			
PB 520/540	$119			
Duo 2300	$119			

Viking Components
56K v.90 PCMCIA FaxModem
$99

A3J
World's Smallest External 56K v.90 FaxModem, no power supply needed
$119

Introducing The "Flip Disk"
High capacity, portable storage for your PowerBook... Just plug it in & it works!

MCE Xcaret Media Bay Hard Drives
PB 3400, 3500, 5300, 190; Xcaret Pro for PB G3 Series

	6GB	4GB	2GB	0GB(empty)
Xcaret/Pro	$549	$399	$319	$149

Flip Disk

Flip 20	(2GB)	$449
Flip 40	(4GB)	$549
Flip 60	(6GB)	$649

Type II PC Card

30 Hughes Suite 203 • Irvine, CA • 92618
Visa / MC / AmEx / Discover / P.O.'s
1-800-5000-MAC • 949-458-0800 • fax 949-458-1803

Open Monday-Friday: 9am-8pm & Saturday: 10am-5pm CST E-Mail Us at: owc@macsales.com

other World Computing

Serving the Mac Universe Since 1988

Competitive Prices, Quality Products and NEVER a Surcharge for Credit Cards!

VISA MasterCard AMERICAN EXPRESS DISCOVER C.O.D.

800-275-4576

FedEx Federal Express FAST! EASY! SECURE!

School/University/Government/Corporate Purchase Orders Gladly Accepted (subject to credit approval)

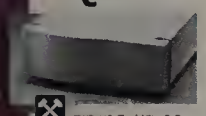
24hr. OnLine Ordering & Product Info Daily Updated Prices & Specials

Find **Other World Computing** on the Web at: **www.macsales.com**

Get the details on Accelerating your Mac at: **www.fastermacs.com**

SCSI hard drives

Apple ROM 1.2 Gig Quantum Fireball



$99 Internal External: $149

- SCSI
- 9.5ms
- 1 Year Warranty

FWB HD Tool Kit v2.5.x Included with all Hard Drives
30 Day Money Back Guarantee
Full Manufacturer Warranty

HardDrives Include
30mb of free software INSTALLED. External version features platinum case with dual SCSI ports, Push-button SCSI ID AND 40 watt power.

	Int.	Ext.
QUANTUM		
9.1gb Atlas II QM39100AL 8ms 7200rpm 1024k 5yr AV	$439	$489
18.2gb Atlas III QM31B200T0S 7.8ms 7200rpm 1024k 5yr	$899	$949
SEAGATE		
2.15gb Barracuda ST32550WC 8ms 7200rpm 512k Cache 5yr	$149	$199
4.5gb Medalist Pro ST34520N 9.5ms 7200rpm 512k Cache 3yr	$269	$319
4.5gb Cheetah ST34501N 8ms 10,000rpm 1024k Cache 5yr	$359	$409
6.5gb Medalist Pro ST36530N 9.5ms 7200rpm 512k 3yr	$359	$409
9.1gb Medalist Pro ST39140N 9.5ms 7200rpm 512k 3yr	$469	$519
9.1gb Barracuda ST39173N 9LP 7.1ms 7200rpm 1024k 3yr	$529	$579
18gb Barracuda ST118273N 9LP 7.1ms 7200rpm 1024k 5yr	$899	$949

Call or Visit www.macsales.com for other IBM, Seagate, & Quantum UltraNarrow and UltraWide SCSI Drives

IDE hard drives

6.4 Gig IDE Quantum Fireball EX

$195

- 5400 RPM
- 9.5ms
- 3 Year Warranty

	Int.
IBM Deskstar GP 8.4gb 5400rpm 9.5ms IDE 3yr Warranty	$249
IBM Deskstar GP 10.1gb 5400rpm 9.5ms IDE 3yr Warranty	$279
IBM Deskstar GP 13.5gb 5400rpm 9.5ms IDE 3yr Warranty	$349
IBM Deskstar GP 16.8gb 5400rpm 9.5ms IDE 3yr Warranty	$449
Seagate Medalist 6.5gb 5400rpm 11ms 3 Year Warranty	$199
Seagate Medalist 8.6gb 5400rpm 11ms 3 Year Warranty	$229
Seagate Medalist 10.2gb 5400rpm 11ms 3 Year Warranty	$249
Quantum 3.5" IDE Hard Drives	
Quantum Fireball EX 6.4gb 5400rpm 9.5ms IDE 3.5" w/3yr	$195
Quantum Fireball EX 12.7gb 5400rpm 9.5ms IDE 3.5" w/3yr	$339

Removable Storage

	Int.	Ext.
Iomega Zip 100MB SCSI With 1 Cartridge	$119	$119
Iomega Zip Plus External With 1 Cartridge		$149
Iomega Jaz 2GIG SCSI With 1 Cartridge	$329	$369
Iomega Zip Cartridges $11 each Jaz 1Gb Cartridges $79 each.		
Iomega Zip Cartridges 10 for $89 Jaz 2Gb Cartridges $85 each.		
Panasonic CDR 4x8 with Toast & Media		$379
Yamaha CDRW4260 2X CD ReWritable/4X Recordable/6X Read w/1 cdr, 1 cdrw, Toast 3.5		$449
Verbatim 74 Minute Gold CDR Media w/Jewel Case $2.25 ea. 50 for $99 100 for $185		

IDE PowerBook Drives

HAVE MORE ROOM TO ZOOM with a bigger PowerBook Hard Drive from OWC

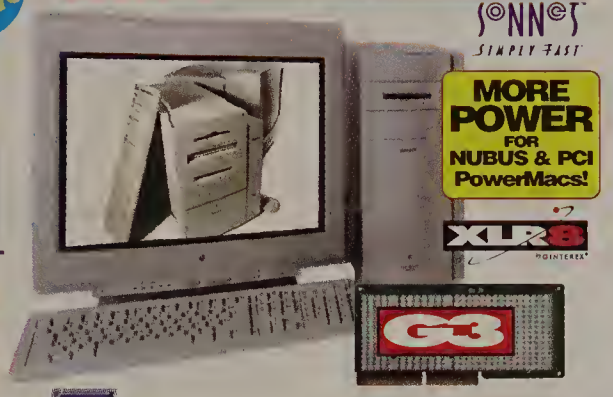
for PowerBook150/190(cs)/5300/1400/3400 & G3 Series

4.0GB IBM Travelstor 4200rpm 12mm Slim with 3 Year Warranty	$259
5.4GB IBM Travelstor 4200rpm 12mm Slim with 3 Year Warranty	$349
6.4GB IBM Travelstor 4200rpm 12mm Slim with 3 Year Warranty	$379
8.4GB IBM Travelstor 4200rpm 12mm Slim with 3 Year Warranty	$549

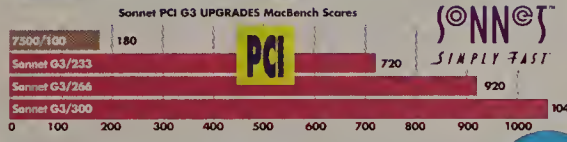
Level 2 Cache Upgrades

	256k	512k	1Mb
6100 PowerMacs/Performas	$15		
7100/8100 PowerMacs/Performas	$15		$99
73/75/76/85/8600 & Compatible Clones		$69	$119
6360/6400/6500; Starmax; & PowerBase		$89	$169

All Processor Cards, Cache & Accelerators include an Other World 30 Day Satisfaction Guarantee.



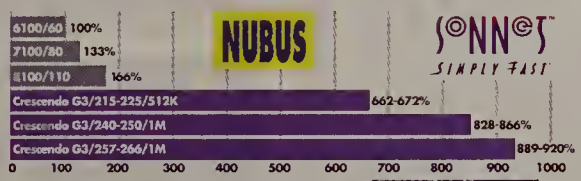
G3 Mac Upgrades



Sonnet PCI G3 Upgrades For the PowerMac 7300/7500/7600/ B500/B515/B600/9500/9515/9600; Workgroup Server 7350, 8550, 9650; Power Comp. PowerWave; UMAX J700 & S900; and DayStar Genesis 53B.

MacWorld Editors Choice!

G3/233mhz w/512k 2:1 Backside Cache	$339
G3/266mhz w/1024k 2:1 Backside Cache	$569
G3/300mhz w/1024k 2:1 Backside Cache	$759
G3/333mhz w/1024k 2:1Backside Cache	$929
G3/366mhz w/1024k 2:1Backside Cache	$1129
G3/400mhz w/1024k 2:1Backside Cache	$1579



Sonnet Crescendo Nubus G3 Upgrades

For the PowerMac 6100/7100/ 8100 & 8115; Performa 6110/6112/6115/6116/6117/611B; Workgroup Server 6150/8150/9150; Radius B1/110.

G3/215-225mhz w/512k 2:1 Backside Cache	$379
G3/225-231mhz 6100 Series ONLY	$449
G3/266mhz w/1024k 2:1 Backside Cache	$569
G3/300mhz w/1024k 2:1 Backside Cache	$769

XLR8 Adjustable G3 Upgrades

For the PowerMac 7300/7500/7600/B500/ 8515/B600/9500/9515/9600; Workgroup Server 7350, 8550, 9650; Power Computing PowerCenter, PowerCurve, PowerWave, PowerTower; UMAX J700 & S900; and DayStar Genesis 53B.

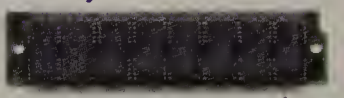
G3/220mhz w/512k 2:1 Backside Cache	$329
G3/233mhz w/512k 2:1 Backside Cache	$369
G3/266mhz w/512k 2:1 Backside Cache	$459
G3/300mhz w/512k 2:1 Backside Cache	$549
G3/300mhz w/1mb 2:3 Backside Cache	$689
G3/333mhz w/1mb 2:1 Backside Cache	$1219
G3/400mhz w/1mb 2:1 Backside Cache	$1699

NEW! Vimage G3 Upgrades

for Motorola Starmax, PowerMac 4400/5400, Performa 6400, UMax C500, & PowerBook 1400

FROM $469!

SAVE BIG ON SIMMS, DIMMS, SDRAM & VRAM



Mac Memory Products

Memory listed by OWC is New with Lifetime Warranty and 30 Day Money Back Guarantee. All Memory products meet or exceed Apple Specifications.

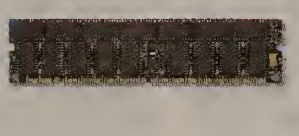
30 PIN SIMMS Non-Parity for Older Macs

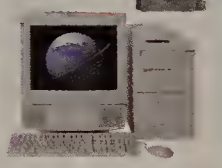
4 MEGABYTE 70 or 60 NanoSeconds	$15
16 MEGABYTE 70 or 60 NanoSeconds	$35

SPECIAL!

72 PIN SIMMS 2k Refresh 60ns

8MEG $19 16MEG $33 32MEG $65





168 PIN DIMMS 2k Refresh 70 or 60ns (specify)

	5V	EDO 5V	EDO 3.3V
16 MEGABYTE	$42	$29	$29
32 MEGABYTE	$75	$69	$79
64 MEGABYTE	$159	$129	$149
128 MEGABYTE	$279	$279	N/A

10ns SDRAM for G3 PowerMacs

32 MEGABYTE	$49
64 MEGABYTE	$105
128 MEGABYTE	$199
256 MEGABYTE	$489

WallStreet & iMac G3 Computers Memory

32 MEGABYTE	$49
64 MEGABYTE	$105
128 MEGABYTE	$209

Call for PowerBook 190/500/1400/5300/3400/3500 and Duo Series Memory

Mac Video RAM

256k PMac 7100/Quadra800/650	$12
512k PMac 8100/Quadra's/LC's	$15
1MEG PMac 72/73/75/76/85/8600 & Compat.	$19
4 MEG Motorola StarMax/PowerMac 4400	$19
4 MEG G3 Video SGRAM.....SPECIAL!	$25

OWC is a Techworks Authorized Reseller. Call or Visit www.macsales.com for the best prices on Techworks Brand Memory.

TECHWORKS Power To Perform™

Other World Computing
224 West Judd St., Woodstock, IL 60098
International: (815) 338-8685
Fax: (815) 338-4332

WD299

Macworld SHOPPER

800•673•MACS

916 • 652 • 1880 FAX 916 • 652 • 1881 800 • 673 • 6227

24x CDROMS

Macintosh Ready

$89 Internal BOOTABLE External $119

Buy any 24x CDROM & get 10 CDs FREE

* Dragon's Lair
* Interactive
* Mayo Clinic
* Hell Cab
* Mad Dog McCree
* 2000 Fonts
* Dracula Unleashed
* Internet Executive
* Stowaway!
* SiriusNet
* Intech - CDROM SpeedTools

68k Macintosh

FREE STUFF!!

Buy any 68k Mac Package Deal & get a Motorola 28.8bps modem or ethernet upgrade* FREE!!

Mac IIcx 8/80-13" mtr, key,mse , Work 2.0 (U)	189.00
Mac IIsi 9/80-13" mtr, key,mse , Work 2.0 (U)	199.00
Mac IIfx 4/80-13" mtr,kybd, Photoshop 2.5LE	249.00
Mac IIvx 8/80-13" mtr,kybd & MS Wks 2.0	249.00
Q650 16/240/CD -13" mtr,kybd, MS Wks 2.0	399.00
Q650 16/2G/CD -13" mtr,kybd, MS Wks 2.0 .	499.00
Q650 32/2G/CD -20" color mtr,kybd	599.00
Q950 20/2G-13" mtr,kybd, Photoshop 2.5LE	499.00
Network Server 500/132-NEW	2950.00

Quadra/Centris 610 16/240 -ENet (U)

16/240 13" Color Mtr, Ext Kybd, **$299**

Quadra 650 16/240/CD-ENet (U)

16/240/CD 13" Color Mtr, Ext Kybd, **$399**

PowerMacs

PwrMac 6100-60 16/2gb/CD (U)

Power PC 601 66Mhz Upgradable to G3 **$449**

PwrMac 7100-80 16/2gb/CD (U)

Power PC 601 80Mhz Upgradable to G3 **$549**

PwrMac 8100-100 16/500/CD (U)

Power PC 601 100Mhz Upgradable to G3 **$599**

PwrMac 7200-120 16/500/CD (U)

Power PC 601 120Mhz **$599**

PwrMac 4400-200 16/2gb/CD (U)

Power PC 603e 200Mhz **$699**

iMac G3-233Mhz (R)

OS 8.5 (rev. B) 32/4gb/24xCD/56k **$1149**

HDs & CDROMs

IBM Ultra SCSI 2.1GB (P)

5400 RPM 3.5" TH SCSI Incl. SCA adapter **$129**

IBM Ultra SCSI 4.3GB (P)

7200 RPM 3.5" TH SCSI Incl. SCA adapter **$199**

ZIP/HD/CDROM Install Kits IN STOCK

Apple 2x 300+ CDROM-Internal (P)	49.00
Apple 4x 600i CDROM-Internal (P)	79.00
Apple 12x 1800i CDROM-Int.(N)	139.00
Apple 24x 3600i CDROM-Int.(N)	169.00
CD External Cases-SCSI cbl incl (N)	39.00
HD External Cases-SCSI chl incl (N) ...	49.000
Apple 240/500/700 MB -Int 3.5" (P) ..	CALL
2 GB SCSI -Int 3.5" (P)	129.00
4 GB SCSI -Int 3.5" (P)	189.00
9 GB SCSI -Int 3.5" (P)	419.00
3 GB G3 EIDE-G3 Internal 3.5" (N)	89.00
5 GB Performa IDE-Internal 3.5" (P) ..	199.00
Apple Floppy Drives-Manual/Auto (N) ..	99.00
Apple Floppy Drives-Manual/Auto (P/R)	79.00

Monitors

Apple 15" MS Mtr (U)

MultiScan tilt/swivel base Built-In Speakers **$229**

Apple 20" MS Mtr (U)

MultiScan tilt/swivel base TRINITRON **$599**

NuBus Video Cards	CALL
Apple 13" RGB-Trinitron, Color (U)	99.00
Apple 14" RGB-Trinitron, Color (U)	149.00
Apple 15" MultiScan-Color, Speakers (U) .	229.00
Apple 17" MultiScan-Color, Trinitron(U) ..	299.00
Apple 20" MultiScan-Color, Trinitron(U) ..	599.00
17" RGB-SuperMac/Radius/Rasterops, Color (U)	179.00
20" RGB-SuperMac/Radius, Color (U) ...	299.00
20" RGB-Trinitron, Color (U)	399.00
Video Cables & Adaptors	IN STOCK

Mac Stuff

SW 1500 (N) Black Ink & Software Incl. **$99**

SW 2500 (N) Black Ink & Software Incl. **$129**

E-Tech 56k Bullet (N) DATA/FAX Software Incl. (RETAIL) **$79**

Motorola 28.8 bps (N) DATA/FAX (OEM) **$29**

MacOS 7.6 (N) CDROM (OEM) **$39**

MacOS 8.1 (N) CDROM (OEM) **$39**

Apple Mouse I	19	5 Port Hub ENET ..	49
Apple Mouse II ..	29	9 Port Hub ENET ..	79
Mouse, 1 button-N	16.50	LC-PDS ENET (N) ...	49
Mouse, 2 button (N) ..	25	PCI-32bit ENET (N)	49
Apple Ext Kybd II (U)	29	PCI 10/100ENET (N)	69
Ext Keyboard (N)	29	TranceiverENET	24.99
Kanji Ext. Kybd (N)	29	EtherNet Cables	CALL
Mouse Balls (N)	5	StyleWriter 1500(U)	99
10 pack Mouse Balls	35	StyleWriter 2500(U)	129
USB Hub-MacAlly ..	69	TONER ...	IN STOCK
USB Mouse-MacAlly	39	INK	IN STOCK

Visit Our Online Catalog Questions? E-Mail: sales@poweron.com

www.poweron.com

4523 Anthony Ct #1 Rocklin CA 95677 Mon-Fri 7a-6p PST Sat 9-4

All Sales Final. No Cash Refunds Given
All Prices include 3% cash discount
Prices subject to change without notice
Gov't & School PO's Accepted

WE BUY MACS
FAX TO 916-652-1881

Mac Sales

www.macs4sale.com

Centris 650 Bundle
Desktop Computer
16 MB Ram/230 MB HD
Sale $299
with Color Monitor & Kyb

Computers

Centris 610 8/230	$199
Centris 650 8/230	$249
Quadra 650 8/230	$269
Quadra 950 16/230	$279
Quadra 700 8/160	$179
Quadra 800 8/230	$279
PowerMac 6100/66 16/160	$379
PowerMac 7100/80 8/230	$449
PB Duo 250 12/120/14.4	$249
PB Duo 280c 12/330/14.4	$369
Duo Dock & Dock II	$79/$149

Monitors

13" Apple RGB	$99
14" Apple Touchscreen	$129
15" Apple Multiscan	$199

Printers

Imagewriter II	$99
Laserwriter IINT	$199
Laser Select 300	$179

* Much More in Stock *

1-888-MACSALE

Buy • Sell • Repair • Parts

1-888-622-7253

Prices represent a Cash Discount.
Products are Used/Refurbished unless noted.

Think COMPUTER REVELATIONS

ALL APPLE PARTS & ACCESSORIES IN STOCK

Leasing
Rentals / Supplies

Service available in NYC area

1 800 275-9924

in NY 516 737-0800
FAX 516 737-0923
331E Dante Court
Holbrook, New York 11741

NEW & USED BOUGHT & SOLD

Choose 428 at www.macworld.com/getinfo

1-800-334-KIWI

Kiwi Computers • Save on refurbished Macs

Computers & Parts

Computer prices do not include keyboard, mouse or monitor.

Performa 630 20/1.2 GB 4xCD	$299
PowerMac 7200/120 32/1.2 GB 8xCD	$599
PowerMac 6500/275 32/4 GB 12xCD	$999
Powerbook 520, 540, 5300, 1400 & 3400	Call
Performa 630 logic board (exchange)	$75
Performa 6200 logic board (exchange)	$249
Performa 630/6200/6300 power supply	$59
Performa 6400/6500 power supply	$69
Manual inject 1.44 internal floppy drive	$39
Apple Design keyboard	$25
Platinum 28.8 internal modem for P5200/6200	$49
GV internal 56k modem for PM6500/5500	$79
Apple 4 GB internal IDE hard drive	$125
Apple 6 GB internal IDE hard drive	$149
Apple 12x internal CD-ROM	$99
Apple 24x internal CD-ROM	$145
Internal ZIP drive	$75
16mb 72 pin SIMM	$32
32mb 72 pin SIMM	$64

Upgrades

Logic board upgrade prices are with exchange.

PowerMac 7200/75 to 7600/120mhz	$425
PowerMac 7200/90 to 7600/120mhz	$399
PowerMac 7200/120 to 7600/132mhz	$385
Performa 6200 to 6500/225mhz	$499
Performa 6300 to 6500/225mhz	$449
Performa 6320 to 6500/225mhz	$425
Performa 5200 to 5500/225mhz	$499
Performa 5300 to 5500/225mhz	$449
Performa 630 series to 6200/75mhz	$249
Performa 630 series to 6300/100mhz	$349
Quadra 610 to PowerMac 6100/60mhz	$275
Quadra 660AV to PowerMac 6100/60mhz	$249
Performa 600/IIvx to PowerMac 7100/80mhz	$349
Centris 650 to PowerMac 7100/80mhz	$325
Quadra 650 to PowerMac 7100/80mhz	$299
Math Coprocessor for Q605, Q610, P575, P630	$75
Powerbook 190 series to 5300/100mhz	$399
PB 520c/5300cs upgrade to active matrix	$349
PB 1400cs upgrade to active matrix	Call

Visa/Mastercard/American Express No Surcharge.

Refurbished products have a 90 day warranty • Returns subject to a 15% restocking fee • Prices subject to change without notice.

Toll Free: 800-334-5494 International: 310-553-4507 Fax: 310-286-9667

Kiwi Computers, P.O. Box 67381, Los Angeles, CA 90067

Kiwi Computers is not an Apple Authorized Dealer. Mac, Power Mac, Performa, Powerbook, are trademarks of Apple Computer, Inc.

TRADE YOUR MAC FOR A NEW ONE. We Pay Top $$$ For Your Mac & Mem.

CALL FOR UPGRADES
Email: cgn @ cgnusa.com

BUY•SELL•TRADE

We custom configure and test your system.

PowerMacs

G3 266 Mhz32/4gb/CD	1345
G3 233 Mhz32/4gb/CD	1250
G3 300 Mhz 64/4gb/CD	1875
9600 300 MHZ	1890
8600 300 32-4Gb-CD	1420
G3 330 MT AV	2659
G3 300 MT AV	2195

WoW !! iMAC in Stock

G3 333 Mhz	2590
7200 /75/90/120	CALL

Call for config. not listed

Powerbooks

G3 300 Mhz DVD	3950
G3 300 Mhz 14"	3595
G3 266 Mhz	2625
G3 233 Mhz 14"	1935
3400cs 240 Mhz	1485

G3 Power Books Call

Demo Powerbooks

1400CS 16/2gb/cd	990
540C 12/500/Mod	595
5300c 16/750	795
145 - 170 -180c-165c	CALL

5300 cs 16/750 725

Upgrades

Same day Upgrade No down Time!!	
3400 to PB G3	Call
7200 to 7600	429
8100 to 8500	499
7500 to G3 250 Mhz	535
CAll for G3 Upgdes !!!	
Q800- Q840 to 8500	599
9600 to G3 300Mhz	Call
Quadra to 7500/100	329
Q800-840 to 8100	349
Call for PowerBook Upg.	
Call forUpgrades not listed	

Demo Macs

8500 32-2gb-cd	795
7600	695
8600	1290
9600 300 0/0/cd	1850
8100 16/500/CD	590
Q 650 16/120	150
6100 16/250	245
Mac IIci	65

Special

8500 32/2gb cd	$795
Q650 16/120	$190
7600 32/1gb/CD	$690

Storage

Dimms 32/64/128	55/89/179
30 Pin 1/ 4/16	8 / 13/ 55
72 Pin 16/32	45 /75
CD 2X-4X-12X-24X	Call
HD 1.GB - 2.GB-4G8	Call

Exchange ON :
Logic Boards, Power Supply Call

Call For:
Monitors, Printers, Scanners.
All Apple Parts In Stock and
We do Advance exchange.
Leasing Available.

Parts

Floppy 1.44	55
POWER SUPPLIES	CALL
AV Card	$135
Power supply Cx Ci 7100	35

Call for Logic Boards & more

Computer Graphics & Networking

All prices Reflect cash Discount
Visa, Mastercard, Amex Accepted
<< Prices are subject to Change.>>

TEL:310-441-4771 10922 W. Pico Blvd. Los Angeles, CA 90064 Fax: 310-441-4770

MacWorks 800-482-2705

e-mail: sales@macworks.com
Voice 913.599.6227 • Fax 913.599.6111 • 9am-6pm Mon-Fri CST
Prices Subject to Change • Visa/MasterCard/AmEx
We only ship FedEx • 15% minimum restocking fee on all returns

PowerMac Bundles

- PowerMac 7100/80

ONLY $599.99

Apple/Quantum 1.2 GB SCSI

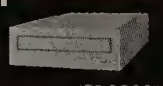
ONLY $99.99

Used Desktop Macs

PowerMac 7200/90	$499.99
PowerMac 7100/66	$399.99
PowerMac 6100/60	$299.99
Quadra 840av 16 250/CD	$299.99
Quadra 650 12/230	$229.99
Quadra 610 12/230	$199.99
Quadra 605 12 160	$179.99

FROM $179.99

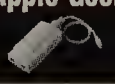
Apple CD-ROM Drives



	Internal
Apple 24x (CD3600i)	$179.99
Apple 2x (CD300i+)	$49.99
Sony 12x*	$99.99

*includes FWB; OS 8 bootable

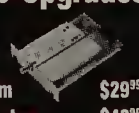
Apple GeoPort Adapter I



$19.99

Apple Video Upgrades

- New Apple Warranty



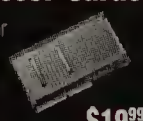
Apple Video System	$29.99
Apple TV/Video System	$49.99
Apple MPEG Media System	$20*

*with video system purchase

FROM $29.99

Apple Processor Cards

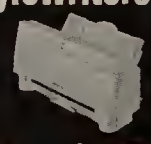
- 604/604e cards for PM 7300-9600



Apple 604/132	$19.99
Daystar 604e/200	$149.99
Sonnet 604e/233	$179.99
Apple 604e/200MP	$399.99

Apple StyleWriters

- Refurbished
- Incl. New Ink
- 90-day Warranty
- LocalTalk & Ethernet available



Color SW 2500	$179.99
Color SW 1500	$149.99
StyleWriter 1200	$129.99

www.macworks.com

Monitors New Year's Blowout Video Cards

MONITORS

Radius Intellicolor 20e
20 'Trinitron
NOW $799!!

GRAPHICS CARDS

Thunder IV GXfrom $699

WITH 24 LARGEST SUPPLIER OF NUBUS PRODUCTS!

NUBUS CARDS

24bit Accelerated Graphics Cards

Compatible G3 Upgrade & OS8 Nubus Cards	
Futura Series (up to 1024X624)	$89*
Radius 24xp (832X768)	$149*
Spectrum 24 Series V (1024X768)	$199*
Spectrum Power (1152X870)	$299*
Thunder II GX (1152x870 up to 1600x1200)	from $299*
PhotoEngine Increase PhotoShop 15x's	FREE*
Thunder IV GX (1152x870 up to 1600x1200)	from $699*

PCI CARDS

RasterOps Twin Turbo 24bit	from $179
Radius ThunderColor 30/1152	$549
Radius ThunderColor 30/1600	$699
Radius ThunderPower 30/1920	$749
Radius Thunder 3D	$1399
Radius Thunder TX	$799
Radius Tempest	$449
Radius PrecisionColor 8/1600	$299
Radius PrecisionColor24/1600	$399!

Most Radius, SuperMac & Emachine monitors in stock
*With Qualifying Monitor or Video Card Purchase

DIGITAL VIDEO

Spigot Pro AV and Power AV	from $199
• for 660AV, 840AV, 6100Av, 7100AV, 8100AV	
Video Spigot Cards	from $99
• Spigot Nubus, LC, Si, Spigot II Tape	
VideoVision Telecast	only $799!!
• Ask how to qualify for an additional $100 dis	

VideoVison Nubus and PCI
- Broadcast quality video output
- Proven Non-Linear Video editing technology $699!!

Digital Video Workstation!

$1849!

- PowerMac 81/110
- 32/2GB/cd
- 15" Color Monitor
- VideoVison Studio 2.5.1
- Adobe Premiere

Graphics Workstation!

from $1649!

- PowerMac 81/110
- 32/2GB/cd
- 21" Two Page Color Monitor

PRINTERS

Apple LaserWriter	from $199
• 300dpi, 8ppm, Postscript	
Apple Personal LaserWriter NT	$299
• 300dpi, Small Footprint, Postscript	
Apple LaserWriter IIF	$399
• 300dpi, Postscript Level 2	
QMS 860 Hammerhead	only $1249
• 600 dpi, Tabloid 11X17, Postscript Level 2, Mac & PC	

Proof Positive Color Printer
- Continuous-Tone, Photo-Realistic, Proof to Press Color Simulation
- Full Page & Two Page Options Available
- True Postscript Level 2
- Prints Match Prints

Dye-Sub Blowout!!!

from $1599!

COMPUTERS

Mac IIcx $249!

- 4mb/160 HardDrive
- 15" Grayscale Pivot
- Color Monitors Available

Mac Surplus- macsurplus.nubus.com- 800-444-9088

Mac Surplus, Inc. 14609 Dartmouth Dallas,TX 75244 Monday thru Friday 9AM to 6PM CST
Domestic Sales macsurplus@nubus.com Fax 254.299.2705 Consultants/Dealers 254.299.2705 International Sales 254.299.2705
Prices reflect 2% cash discount. Prices subject to change. Not liable for typographical errors. Dealers and consultants call for quantity pricing. We ship anywhere.
All Monitors, Printers, and CPU's are Factory Recertified unless otherwise stated. Call for latest pricing & availability on NEW Options.

Choose 430 at www.macworld.com/getInfo

MacBYTE

SERVING MAC USERS SINCE 1987

GREAT DEALS ON REFURBISHED MACS NOW!

BUY • SELL • TRADE

CASH FOR MACS
NEW & USED MACS
WITH WARRANTIES

Local Area-On-Site Consulting

800-432-2983
12910 Culver Blvd., Suite H
Los Angeles, CA 90066
FAX: 310-448-4494

Choose 433 at www.macworld.com/getinfo

HAWKE SYSTEMS

2550-A Chimney Rock Rd
Hendersonville, NC 28792
(800) 875-2610

Specialist in Refurbished Macintosh Computer Equipment

Visit our Web Site at
www.MacHawke.com
For a full list of our current Systems, Parts & Pricing.

Six Month System Warranty

Fax - (828) 693-7271
Email - MacHawke@AOL.COM

Choose 434 at www.macworld.com/getinfo

USED MACS & POWERBOOKS FOR SALE

7500/100	16/1gb/4x	$ 700
7200/90	8/500/4x	550
7100/66 AV	16/700/2x	525
6100/60	8/230	325
PwrBook 1400cs/117	12/750	875
PwrBook 5300c/100	**16/750**	**800**
PwrBook170	8/80	325

Prices subject to change. Limited to stock on hand, subject to prior sale. Call for up-to-the minute inventory & prices.

11933 Wilshire Bl., W. Los Angeles, CA 90025
(800)873-3726

WANTED

WE BUY USED MACS!

TOP $$$ PAID

Any Quantity • FedEx check delivery
Fax a list for a quote (310) 966-4433

MAC Solutions

www.macsolutions.com
(800)80-WE-BUY

voice: 925-689-9488 fax: 925-689-9487 PRICES & QUANTITIES SUBJECT TO CHANGE Place Your Orders OnLine!

1-888-447-3728 • MacResQ • www.macresq.com

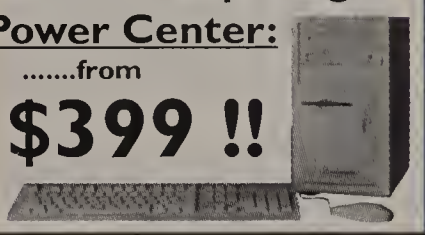
Toll Free
Mac OS software
8.1: $39
7.6: $39
w/ Claris 4.0
7.6: $29
(ALL on cd rom)

Mac OS

Ready for G3 UPGRADE !.....

Specs include:
- 3 PCI slots
- SCSI hard drive
- 512k vram
- ethernet ready(AAUI & 10BT)
- Dimms

Power Computing
Power Center:
.....from
$399 !!



*2 models to choose from * TOWER CASE*

Customize your own machine! 0/0/0: $399
(no ram, hard drive, cd rom, OR processor)
We sell the components to build your own system !
or
16/1.2 Gig/12xCD: $699
•603e/180mhz
• 90 day MacResQ warranty •

New ! Sony internal 12x CD Rom's

$99
mac bootable

Apple 1.2 Gig Hard Drives
(Quantum, internal, 3.5", SCSI) $99

Please visit our website for all of our inventory including CPU's, PowerBooks, Printers, Monitors, Hard drives, Floppy drives, etc. !!

Internal APPLE CD Rom Drives
CD 300i+ (2x) $39-R CD 3600i (24x) $169-R
CD 600i (4x) $79-N CD 1800i (12x) $149-N

Mac-Res-Q.

15% re-stocking fee- ALL ITEMS REFURBISHED UNLESS NOTED AS NEW • All Parts Sold With a 90 Day MacResQ Exchange Warranty • Exch. Required For ALL Power Supplies• All Major Credit Cards With NO Surcharge. •

Choose 432 at www.macworld.com/getinfo

Digital Reality, Specializing in Rebuilt Imagesetters complete PrePress Systems & Digital Video

•phone 949- 574-3939
•fax 949- 574-3947

www.DigitalReality.net
email:CLucero126@aol.com

3101 W.PCH suite 150 Newport Beach Ca. 92663

SilkScreening

Imagesetter - Agfa or LinoType 18" Wide

$15,500

- Includes RIP
- Adobe Postscript
- 2400 DPI
- Factory Refurbished

Pre Press System

Complete Color Pre Press System

$22,950

Includes Power Mac G3 32/1G, 17" Color Manitor, Software, Ex Keybd., AGFA Calar Scanner, Calar Proaf Printer, Imagesetter w/Rip Pracessar.

Harlequin Rip

Mac & Windows
Only Two In Stock !
$5695

Dolev System

SCITEX DOLEV 400/ 4UP IMAGESETTER

$40,000

WITH PSM SOFTWARE RIP FACTORY REFURBISHED $40,000. INCLUDES 6 MONTH FULL WARRANTY INSTALLATION, DELIVERY AND TRAINING!!

Spot Color System

COMPLETE SYSTEM FOR SPOT COLOR

Includes Power Mac, software, DyeSub color Printer AGFA Imagesetter, and Densitameter.

$17,950

PlateMaking System

Digital Platemaking Refurbished System

$450 per mon

Incudes AGFA Imagesetter for process calor,separations upta 150 liness-creen,Rebuilt plate pracessar, densitameter, postscript II Rip, Calibration software

Howtek Scanner

D4000

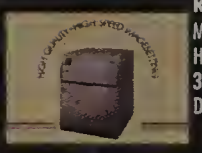
$9,950

- 3.8d Optical
- User Slectable
- 600 RPM
- Tungsten Light
- Focus cantral

Bringing high quality calor scanning to mid-range publishing print shop

ECRM MAKO

The best Imagesetter available with Punch Registration:
Maka 3600 14"
Horlequin Rip G3
300MHZ Pracessor
Densometer
$1275 Per Month



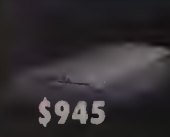
ECRM Marlin

Marlin: 18.1", Harliquin Rip,G3/300 MHZ, Processar, Densameter! $1875 Per Month

ECRM KnockOut

SAPHIR SCANNER

High quality calar scanner Lina Calar light why pay $4,500 for a high quality sanner when you can purchase a refurbished one!



$945

Call for entire Saphire Line!

AVID ® XPRESS

XPRESS Workstotion for Mocintosh

BROADCAST QUALITY!

AVID.

SYSTEM INCLUDES : Real Time effects, country kit 110v, betacam video, ovid standards effects,Single Channel Contraller 2

and much more!!

Call!

MC1000 Used

MC1000 Bundle Workstotion

AVID.

SYSTEM INCLUDES : Real Time effects, country kit 110v, betacam video, avid standards, Chaice af audia tracks

Call for USED MC 9000, 400, 8000

Media 100LX

9500/200MHz 128MB/2G/CD

MEDIA 100 AUTHORIZED RESELLER

After Effects 3.0, 17" Manitar, Keyboard, 4100 w/SCSI Wide Array, Vicent Component, Batch

demo unit 10,000

Scitex Station

PM 9500/200/128MB/3GB/CD/ATI

SCITEX DIGITAL VIDEO

Edit an the first in dual channel realtime all the time system. Da Superbawl effcets! ESPN effects w/ Deveaus effects and advance effects. Complete system for anly

demo unit 14,795

Dealers

Digital Reality is currently seeking Internationl Dealers . All inquries please email to clucera126 @aol.cam or call and ask far Mr.Carlos Lucera.

All applicants must fill aut dealer applicatian and have an understanding af Digital Pre Press Equipment.

New & factory refurbished. Call for special goverment and educational discounts. We purchase used imagesetters call for bids

SHREVE Systems

For all this and more check out our website!

http://www.shrevesystems.com

WE BUY MACS & MAC STUFF (318) 424-9791

WE STOCK MAC PARTS!

1•800•227•3971

FAX (318) 424.9771 • Technical Support (318) 424.7987
Customer Service (318) 424.9791 • Purchasing/Information (318) 424.9791
1200 Marshall Street • Shreveport, Louisiana 71101

PowerMac 5400/120

- 16MB of RAM
- 1.6GB Hard Drive PowerPC
- 8X CD-ROM
- 180-MHz PowerPC 603e
- Refurbished **$849**

PowerMac 6500/250

- 32MB of RAM
- Iomega ZIP™ Drive zip 100 drive
- 4GB Hard Drive PowerPC
- 12X CD-ROM
- 250-MHz PowerPC 603e
- Refurbished **$1049**

FREE!! ClarisWorks 3 and Carrying Case!

PowerBook 5300cs

- Supports ext. video
- 100-MHz 603e
- Dual-scan color
- Refurbished

Starting at **$699**

ADD VIKING™ V.90 PC CARD MODEM FOR $100!

Macintosh LC580

- 33-MHz MC68LC040
- Built-in display **$599**
- 8MB of RAM
- 800MB Hard Drive
- Includes mouse and keyboard

FREE software!

$699 with internal 4XCD

PowerMac Upgrades

Quadra/Centris 610 to PowerMac 6100/60 (refurbished)
As low as $299!
with exchange of your working board

Quadra/Centris 650 to PowerMac 7100/80 Upgrade (refurbished)
As low as $349!
with exchange of your working board

Quadra 800/840av to PowerMac 8100/80 (refurbished)
As low as $399!
with exchange of your working board

Performa 6200/75 180-MHz Upgrade (refurbished)
Wow! **As low as $399!**
with exchange of your working board

PowerMac 6400/200

- 32MB of RAM PowerPC
- 2.4GB Hard Drive
- 200-MHz 603e processor
- 8X CD-ROM

Factory Refurb **$829**

Newton MessagePad 130

$279 refurbished

FREE Genuine Leather Carry Case and faxmodem!

PowerMac 4400/200

- 200-MHz 603e processor
- 32MB RAM, 2GB Hard Drive
- Internal 12X CD-ROM
- 586 DOS Compatibility Card

PC Compatible!

Factory Refurb **$999**

MACINTOSH LOGIC BOARDS

7200/90 logic board, refurbished	$349.
LC logic board, refurbished	$49.
LC II logic board, refurbished	$179.
Mac LCIII logic board, refurbished	$249.
Performa 630 logic board, refurbished	$199.
Quadra 800 logic board, refurb. (no processor)	$99.
Quadra 840AV logic board, refurb. (no processor)	$99.
Quadra 900 logic board, refurb. (no processor)	$99.
PowerBook 540 logic board, refurbished	$99.

PRINTERS

Apple 11x17 Color Inkjet Printer NEW, #M9500	$199.
Apple StyleWriter 1200, refurbished	$139.
Apple Stylewriter 1500, factory refurbished	$199.
Apple Color StyleWriter 2400, refurbished	$199.
Apple Personal LaserWriter LS, NEW	$379.
Personal LaserWriter NTR, refurbished	$549.
LaserWriter IInt, refurbished	$299.
LaserWriter IIf w/5MB RAM, refurbished	$699.
LaserWriter IIg w/5MB RAM, refurbished	$799.
Texas Instruments Micro Laser Pro E NEW	$699.
NEC SilentWriter 1765, 17ppm! NEW	$999.

Laser toner cartridges sold separately

APPLE WORKGROUP/WEB SERVERS

WGS 8550/200 16/2GB/CD, refurbished	$1149.
WGS 8550/132 24/2GB/CD, refurbished	$949.
WGS 7250/120 16/2GB/CD/Internet, NEW	$1099.
WGS 6150 16/500/CD, refurbished	$649.
WGS 9150/120 16/1GB/CD, refurbished	$999.
WGS 80 16/500/CD, refurbished	$749.
Network Server 500 32/2GB/4XCD, refurbished	$1199.
Network Server 700 48/4GB/DAT-2, refurbished	$1699.

VIDEO CARDS

ATI XClaimVR RAGE II 2MB with FREE TV Option	$149.
E-Machines DoubleColor SX Nubus Card NEW	$49.
RasterOps 24MX NEW, 24-bit Nubus	$149.
Supermac 8.24 PDQ Plus, 24-bit Nubus card	$449.
*PowerMac HPV Card (1MB)	$79.
*PowerMac A/V Card (2MB)	$249.

MONITORS

Apple 14" A/V NEW	$249.
Apple 14" Multiscan, refurbished	$149.
Apple 15" Multiscan, factory refurbished	$279.
Apple 15" AV, factory refurbished	$299.
Apple MultiScan 17", refurbished	$349.
Apple 20" Multiscan, refurbished	$999.
Radius IntelliColor/20e, factory refurbished	$999.
Voxon 14" Multiscan NE W	$179.
Voxon 15" Multiscan NEW	$229.
Radius Color Pivot LE, refurbished	$299.
Radius Color Pivot, refurbished	$249.

APPLE PC COMPATIBILITY CARDS

Pentium 166-MHz, 12" PCI card, refurbished	$299.
586 100-MHz, 7" PCI card, refurbished	$149.
486 66-Mhz for 6100 series, NEW	$59.

FREE PC CD pack with PC Card Purchase!

NUBUS ADAPTERS

Quadra 660AV NuBus Adapter	$79.
Quadra 610 Nubus Adapter	$79.
IIsi Nubus adapter with math co-processor	$69.

IMAGING PRODUCTS

Apple Color OneScanner refurbished	$199.
Apple Color OneScanner 600/27 refurbished	$299.
UMAX UC840 Scanner NEW	$199.
Apple QuickTake 200 refurbished	$349.
Apple QuickTake 150 refurbished	$199.

PowerMac CPU SALE!

9500/200 32/2GB/CD **$1349** refurbished	9500/120 16/1GB/CD **$999** refurbished
8500/132 16/2GB/CD **$999** refurbished	7500/100 16/1GB/CD **$799** refurbished
7200/120 16/1GB/CD **$749** refurbished	6400/180 16/1.6GB/CD **$729** refurbished

PowerComputing

Factory Refurbished Systems

PowerCenter Pro 180MT

- 180-MHZ PowerPC 604e, 2MB VRAM
- 32MB RAM, 2GB HD, 16XCD-ROM

NOW ONLY **$1049**

PowerBase 180LP

- 180-MHZ PowerPC 603e, 2MB VRAM
- 16MB RAM, 2GB HD,16XCD-ROM

NOW ONLY **$749**

PowerBase 240MT

- 240-MHZ PowerPC 603e, 2MB VRAM
- 16MB RAM, 1.2GB HD,16XCD-ROM

NOW ONLY **$799**

Save A Mac Foundation

MacAlly Extended Keyboard

$19

NEW!

1.44 SuperDrives

STARTING AT $49!
REFURBISHED
NO EXCHANGE REQUIRED!

NEW PM7500 POWER SUPPLY ONLY $229

NEW 7200/75 LOGIC BOARD ONLY $149

MAC LC SERIES POWER SUPPLY

For LC, LCII and LCIII

REFURBISHED **$29**

NEW! **$79**

Color StyleWriter LocalTalk Module

Connect your StyleWriter 2400 or 2500 directly to a LocalTalk network!

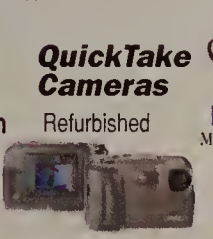
$39!

ClarisWorks 4 Internet Edition NEW!

FREE Claris HomePage!

QuickTake Cameras

Refurbished



STARTING AT $99!!

*Products are refurbished unless indicated as "new". Prices reflect a 2% cash discount and are subject to change without notice. Returns are subject to a 15% restocking fee. Not responsible for typographical errors. All trade-ins MUST BE in working condition. Refurbished systems may include like-new components and may also include cosmetic blemishes which do not functionally impair performance of the hardware.

"Custom Configuration Specialists"
•Dealers & International sales welcome!
•Govt.,University & Corporate P.O's Welcome.
•Best Prices, Service & Delivery.

Infinity Micro
800 • 589 • 1234

Toll free: (800) 589-1234
Int. (310) 470-9426 Fax: (310) 470-4956
2289 Westwood Blvd.Los Angeles, CA. 90064
www.infinity-micro.com
Email us at: Sales@infinity-micro.com

PowerMacs

IMAC G3/233 32/4GB/24X/15"	1239
G3/233 32/4GB/24XCO/15"BLTIN	1695
G3/233OT 32/4GIG/24XCO/KB	1095
G3/266DT 32/4GIG/24XCD	1359
G3/266MT 32/6GIG/24xCD/ZIP	1595
G3/266MT 128/4GW/24XCD/8MB	2095
G3/300DT 64/6GIG/24XCD/ZIP	1749
G3/300MT 64/8GIG/24XCD/6MB	2095
G3/333MT 128/9GIG/24XCD	2595
9600/350 64/4GIG/24xCD/Zip	2495
9600/200 32/4GIG/24XCD	1795
8600/200 32/2GB/24xCD	995
8600/250 32/4GB/24xCD	1195
7600/132 16/1GIG/8xCD	695
7300/200 32/2GIG/24XCD	1095
7300/180 16/2GB/CD/KB	995
7300/180 16/2GB/CD/DDS	1095
7100/80 8/500/CD	395
6500/300 32/4GB/12XCD	595
6500/275 32/6GB/24XCD/56/ZIP	995
4400/200 32/2GB/CD/DOS	995
5500/225 32/2GB/12x/15"	695
7200/90 24/500/CD	995
7200/120 16/1.2/8xCD	395
	595

APPLE PRINTERS

ColorStylewriter 4500*	149
LaserWriter 12/640*	795
LaserWriter Color 12/600	2895
LaserWriter 8500	1395

DIGITAL CAMERA'S

SONY MAVICA-FO51/81/91	495/749/899
SONY MAVICA MVC-FDR1/FDR3	295/495
AGFA EPHOTO 780/1280	379/549
AGFA EPHOTO 1680	795

POWERBOOKS

G3/300	64/8G/CO/56K/14.1"T	3395
G3/300	64/8G/DVD/56K/14.1"T	3795
G3/292	64/8G/20X/56K/14.1"T	2895
G3/266	64/4G/20X/56K/14.1"T	2495
G3/250	32/5G/20XCD/56K/13"T	2295
G3/233	32/2G/20X/56K/14.1"	2295
G3/233	32/2G/20XCD/13.3"	1995
G3/233	32/2G/20X/56K/12.1"T	1895
G3/233	32/2G/20X/12.1"D	1695
3400C/240	16/3GB/12XCD	1695
3400C/200	16/2GB/12xCD	1595
3400C/180	16/1.3G/8XCD	1395
1400C/166	16/2GB/8XCD	Call
1400CS/166	16/2GB/8XCD	1295
5300C	16/1GIG	895
5300CS	16/750	595
2300C	20/1GIG/14.4*	695
2400C/180	16/1.3GIG	1095
540C	32/500/19.2MDM	595
180	14/120/14.4 Fax*	995
Apple Duo Oock IIPLUS		395
		95

PRINCETON

EO750/EO720	419/329
EO705/EO710/EO74	299/319/459
EO2010 21"	949
EO900 19"/AGX900 19"	479/649
Ultra 72/75/100	259/269/795
Ultra 90/80	519/995
14"LCO/15"LCO	849/1049

APPLE MONITORS

APPLE 15"AV	259
APPLE 1705/1710	275/289
APPLE 20" Multis./850AV	695/895
APPLE ColorSync 17"/20"	449/1395

ViewSonic

041 14" /051"	129/179
053 15"/ Q71-2 17"	159/259
0100 20"	849
V73 17"	329
V55 15"/ V95 19"	169/489
V115 21"/ V115T 21"	889/979
MB 90 19"/MB110 21"	649/989
G790 19"/G810-2 21"	539/889
G653 15"/G773-2 17"	229/409
GT-775-2 17"/ GS771 17"	495/369
P810-3 /P815-3	995/1189
PS775 17"/P817 21"	479/1295
PT771 17"/PT775-3 17"	495/549
PT813 21"	1079
VP140 14" LCO	839
VPA150 15" LCO	1079
VPA138 13.8" LCD	799
VPA145 14.5" LCD	829
PJ1000 LCO Projector	4295
PJL802 LCO Projector	2995
PJ820 Portable Projector	3449

Seagate
Barracuda 18.2GIG
$799.00

HEWLETT PACKARD

LaserJet 5MP	595
LaserJet 6MP	695
DeskJet 890cxi	389
OeskJet 1600CM	1095
LaserJet 1100XI	399
LaserJet 4000/N	1089/1145
LaserJet 4000TN	1295
LaserJet 4MV	1049
LaserJet 5000	1295
LaserJet 5000N	1495
LaserJet 5000GN	2095
LaserJet 5SiM	1895
LaserJet 8000/DN	2249/2995
LaserJet 8000N/8100	2495/2595

GCC TECHNOLOGIES

Elite 12/600 /1212	949/1095
Elite XL-608LC	1295
Elite XL-1208	2395
Elite XL-20/1200	1995
Elite XL-20/600	1645
Elite XL-20/800	1849

EPSON

Epson Stylus 700/800	229/199
Epson Stylus 850/850N	309/449
Epson Stylus 1520/740	479/249
Epson Stylus 3000 Color	1095
Epson Stylus Pro-XL 11x17	249

GLOBAL VILLAGE

TELEPORT 56K FLEX v95	119
POWERPORT 56K PCMCIA	169
POWERPORT 56K ETHERNET	249
POWERPORT MERCURY/500	49

AGFA

SnapScan 1212U/1236SA	179/279
Snapscan 1236S	229
Duoscan T1200/SOLO	629/2245
Duoscan w. photoshop	2395

EPSON

Expression 836XL 11X17	2095
Expression 636 Artist 2	639
Expression 636 Pro/636 Exec.	995/529

MICROTEK

Scanmaker E3Plus / V310	119/89
ScanMaker V600/X6	109/129
ScanMaker 4 / ScanMaker 5	609/2179
Scanmaker 6400XL	879
Scanmaker 9600XL	1295
ScanMaker 35T Plus	689

UMAX

Astra 610s/1220U Deux	99/139
Astra 1200s DX/1200SLE	209/238
Astra 1220S/2400S	169/369
Mirage II/Mirage IISE	6195/2545
PowerLook 3000/IIADV	5995/979
PowerLook IIISE/IISE LG	2079/2229

SONY

100ES/100GS	199/249
200ES/200GS	359/459
200PS/400PS	629/695
500PS/220VS	1095/539
20GS/120VS	1029/319
GDM-W900	2049

Specials

Powerbook 170 8/80/14.4	195
PowerBook 180 1/120/14.4	295
PowerBook 520C 12/240/19.2	395
Powerbook 540c 16/500/19.2	495
PowerBook 500 Series Battery	49
PowerBook 500 series 8MB Mem.	29
Powerbook G3 series battery	249
Magnavox 20" Color	395
Epson Stylus ProXL	249
Farallon Etherwave	29
Dos card for PM 6100 series	49
Radius Pivot	99
Radius 20" intellicolor	499
RasterOps 20" Black & white	195
ViewSonic G810 monitor	695
Portrait Pivot Display 17"	295
Apple Ext. Video connector	49
Performa 640 12/500/CD	195
Apple Laser 16/600 220Volts	995
Malnctosh Centris Nubus Adap. card	19

SOFTWARE

Adobe Photoshop version5.0	295
Adobe Illustrator version 7.0	279
Adobe Pagemaker vers. 6.5	279
Adobe After Effects	1095
Quark Express package	679
Microsoft Office package 98	295

RASTEROPS

MC 6215 17" / MC 6315 17"	379/ 439
MC 751U 19"	439
MC 801 21" / MC 801HR 21""	995/1095

PHILIPS/MAGNAVOX 4 YEAR ON SITE WARRANTY!

$ 701 To $ 1200	$1201.To $ 2000.	$2001 To $ 3000	$3001.To $ 4000	$ 00! To 50?0
$ 148.95	169.95	209.95	$ 254.95	$ 279.95

WE MATCH, BEAT, DEAL CALL US LAST!

•Prices are cash discounted&Subject to change w/o notice!• Visa,MC,Amex, Govt., university & corporate P.O.'s welcome.*=factory reconditioned units.

COMPU AMERICA
"The Computer Specialist"

1-800-533-9005
We are open Mon-Sat, 9am-6pm
Fax Bids: (310) 475-7744 or email us at compuamer@artnet.net
10435 Santa Monica Blvd., Los Angeles, CA 90025
Check out our Web!
WWW.COMPU-AMERICA.COM

Government, University and Fortune 1000 P.O.'s are welcome!
Business Leasing is Available!
International Orders Please call
tel: (310) 446-1771

POWERMACS! Starting at $799

G3/333MT	128/2-4GW/24X .2499
G3/300MT	64/8GIG/24XCD/ZIP .1999
G3/300DT	64/6GIG/CD/ZIP .1699
G3/266MT	128/4GW/24X/ZIP/6VR .1899*
G3/266MT	32/6GIG/24X/ZIP .1699*
G3/266DT	32/4GIG/24X .1349
G3/233MT	32/4GIG/24X/MODEM .1499
G3/233DT	32/4GIG/24XCD .1199*
9600/350	64/4GIG/24XCD/ZIP .CALL
9600/300	64/4GIG/24X/ZIP .CALL
9600/200MP	32/4GIG/CD .CALL
9600/200	32/4GIG/CD .CALL
8600/300	32/4GIG/24XCD/ZIP .1199*
8600/250	32/4GIG/12XCD/ZIP .1099*
8600/200	32/2GIG/12XCD/ZIP .999*
7300/200	32/4GIG/CD .899*
6500/300	32/4GIG/CD/FAX .999*
6500/250	32/4GIG/CD/FAX .899*
6500/225	32/3GIG/CD/FAX .799*
5500/225	32/2GIG/CD/15" MONITOR .899*
4400/200	32/2GIG/CD/DOS CARD .799

PERFORMAS

6400/200V	16/2.4G/CD/MOD .CALL
6400/200	16/2.4GIG/CD/MOD .CALL
6400/180	16/1GIG/CD/MOD .CALL
6360/160	16/1GIG/CD/MOD .CALL

WORKGROUP SERVERS Starting at $2299

G3/233	64/4GIGUW/CD/5HA .CALL
G3/266	128/2-4GIGUW/CD/SHA .3199
G3/300	128/2-8GIGUW/CD/SHA .3499
G3/333	128/9G/CD .4099
9650/233	64/4G/CD/5HARE/DAT .2299

POWERBOOKS Starting at $599

3400C/240	16/3G/CD/MOD .1499*
3400C/200	16/2G/CD/MOD .1399*
3400C/180	16/1G/CD/MOD .1199*
2400C/180	16/2G/CD .1099*
1400C/166	16/2G/CD .1399*
1400CS/166	16/2G/CD .1299*
1400C/133	16/1G/CD .1199*
1400CS/133	16/1G/CD .999*
1400CS/117	12/750 .899*
S300CS/100	16/750 .599*

NEW G3 POWERBOOK! Starting at $1599

G3/233	32/2G/20X/12.1STN .1599
G3/233	32/2G/20X/12.1STN/56K .1699
G3/233	32/2G/20X/12.1TFT/56K .1899
G3/233	32/2G/20X/14.1TFT/FLOP .2099
G3/233	32/2G/20X/14.1TFT/56K .2299
G3/250	32/4G/20X/13.3TFT/56K .2199
G3/266	64/4G/20X/14.1TFT/56K .2699
G3/300	64/8G/20X/14.1TFT/56K .3499
G3/300	64/8G/DVD/14.1TFT/56K .3899

SONY Starting at $199

Sony 20SEII	.999
Sony W900	.CALL
Sony 100ES/100GS	.199/239
Sony 200ES/200GS/200PS	.359/449/679
Sony 400PS 19"	.779
Sony 300SF 20"	.999
Sony S00PS 21"	.1149

ViewSonic® Starting at $139

Q41 14"	.139
Q51/Q53 15"	.159/169
Q71/Q100	.249/599
E641/E6SS	.139/199
V73/V75 17	.319/379
V95/V115	.499/849
G771/G773	.329/379
GT77S /G790	.479/499
P77S/PT77S/PT771	.499/549/549
G810/P810	.899/999
PT813/P815	.1099/1099
29GA	.1649
VIEWSONIC VWPAN VPA138	.789
VIEWSONIC VWPAN VPA 145	.799
VIEWSONIC VWPAN VPA 150	.1029
PROJECTOR 800	.CALL

RASTEROPS

Superscan MC-621S	.379
Superscan MC-631S	.449
Superscan MC-751S	.649
Superscan MC-20"	.899
Superscan MC-801/801HR	.949/1199

EPSON Starting at $139

STYLUS COLOR 700/850	.229/279
STYLUS COLOR 600/800	.139*/199
STYLUS COLOR Photo-EX	.449
STYLUS PRO-XL	.299*
STYLUS COLOR 1S20/3000	.449/1099
EXPRESSION/636/EXEC	.529
EXPRESSION/636/ART	.699
EXPRESSION/636/PRO	.979

HEWLETT PACKARD

5000N	.CALL
4000N/4000TN	.1199/1299
6MP	.729
4MV	.999

UMAX Starting at $99

VISTA Astra 610S-Photo Deluxe	.99
VISTA Astra 1200/1220	.229/159
VISTA Astra POWERLOOKII/III	.929/CALL
VISTA Astra POWERLOOK 3000	.CALL
Mirage IISE w/Trans	.2299

intuos Starting at $129

INTUOS 4 X 5	.129
INTUOS 6 X 8	.299
INTUOS 9 X 12	.CALL
INTUOS 12 X 12	.CALL

iomega Starting at $79

ZIP DRIVE 100 M8	.110
ZIP DRIVE PLUS	.110
ZIP CART 10 PACK	.79
JAZZ DRIVE 2 GIG	.299
JAZZ DRIVE 1 GIG	.199*
JAZZ CART 1 GIG	.69
JAZZ CART 2 GIG	.69

GLOBAL VILLAGE

Global Village Plat S6K EXT	.120
Global Village 28.8 PCMCIA	.59
Global Village 28.8/ETHERNET PCMCIA	.99
Global Village 56.6 PCMCIA	.149
Global Village 56.6 ETH/PCM	.189

YOUR #1 COMPUTER SUPERSTORE!

All prices are cash discounted."*" denotes a refurbished product. Not responsible for typos. Apple, the Apple logo, GeoPort, HyperCard,ImageWriter, LaserWriter, Mac, Mac OS logo, Macintosh, MessagePad, Newton, OpenDoc, PowerMacintosh, PowerBook, QuickTake, QuickTime, QuickTime logo and StyleWriter are trademarks of Apple Computer, Inc., registered in the U.S. and other countries. All other names & logos are trademarked by their respective owners. We are Not Apple Authorized.

The Lowest Business Finance Rate Available

FREE Director V6.5 & Painter V5 w/Lease

- **PowerPC G3/333MHZ or PowerTowerPro G3 384MB/ 18GB RAID/ 32X CD /1MB L-2Cache**
- iXMicro UltimaRez 1600x1200 w/8MB Graphic Engine & SONY 19" Color Display - Trinitron Tube.
- Agfa Arcus II w/ Transpancy 36-bit Color Scanner w/ PhotoShop 5.0 & Calibration Software
- Wacom Tablet 12X12 w/ Painter V5, Epson Color 3000 17"X22" Color Proofer
- Combo Drive - JAZ, ZIP, 9GB, CD-R Dr. w/ UPS Battery Back-up & Active Terminator
- Image Solutions' Service contract ,Loaner Program and Extended warranty.
- 0 Down Payment and No Payment for 90 days programs available. We work with 10 different banks. We shop the lowest leasing rate for you.

SUPERBUNDLE!
$249
PER MONTH

MacroMedia - Director 5 - $189 (MAC & Win.)

Authorware 3/Inte. Studio	$489/$689
(10 / 20 Users)	$789/$1289
BackStage / Studio	$149/$199
Director5/Multimedia Studio	$189/$289
Director 5 (10/20) User	$489/$789
Freehand 7/FreehandV5 Studio	$249/$229
Fontographer V4/ Bundle	$249/$299
Macromeida xRes / Ex. 3D	$69/$69
SoundEdit 16/ + DECK II	$189/$249

MicroSoft - Office V4.2.1 - $99(MAC & Win)

M.S.Office4.2.1/Retail	$149/$229
M.S.Office 97/Professional	$149/$229
M.S. Office 98 / CD	$349/$229
Microsoft Word V5/6/98	$99/$199/$269
Excell V4/V5/98	$99/$199/$269
M.S.Project V3/V4	$199/$299
FrontPage/Encyopedia	$99/$49
PowerPoint 4/ 98	$199/$269
M.S. Works V2/ V4	$59/$95
Windows 95/NT/98	$89/$149/$149
NT Server V4 5/10 users	$489/$689

MetaCreation - Infini-D4 - $349 (MAC & Win.)

Bryce II/3D	$99/$159
F.D. Detailer / Expression	$249/$169
F.D. 3D STE/ RayDream 3D	$329/$85
Dabbler II / Art Dabbler II	$29/$45
Infini-D V4 / V4.5	$349/$459
Kai's Power Tool V2/3/SE	$49/$99/$69
PainterV3/4/5	$129/$179/$239
Painter 3D/ Classic	$269/$95
FD Poser v2/ V3	$99/$159
Logomotions V2.1/RayDream3D	$85/$95
Ray Dream Studio / V5	$85/$229

WindowsPentium 233MHZ MT-$389

AMD 266MHZ 32MB/6GB/CD/MiniTower - $449
Pent.266MHZ 32MB/6GB/CD/MiniTower -$589
Pent.300MHZ 64MB/8GB/CD/Minitower -$889
Pen400MHZ 128MB/12GB/CD/MiniTower$1589
Pen450MHZ 128MB/12GB/CD/MiniTower$2189
*Add more memory for performance:
32MB / 64MB / 128MB $69/129/239

Windows Laptop: 64MB/3GB/CD 56K Fax/13"Active Matrix /Floppy

(Free Carry case, AC Adapter, Touch Pad)
(WIN 98,XGA Video, XKeyboard, Mouse Port)
200MHZ/233MHZ MMX $1289/1489
266MHZ/300MHZ MMX $1789/2289
333MHZ/400MHZ MMX $2989/3589
56K / Ethernet / Combo PC Card $89/119/199
*Add more memory for performance:
32MB / 64MB / 128MB $79/159/295
Int. ZIP / Int. DVD Dr. $189/$289

Processor Upgrade

604E 120MHZ/132MHZ	$49/$69
604E 150MHZ/180MHZ	$99/$139
604E 200MHZ/225MHZ	$159/$179
604E 233MHZ/180MP	$199/$239
G3 233MHZ/266MHZ	$339/$585
G3 300MHZ/400MHZ	$779/$1679

DIRECTOR 5 ONLY $99 w/ $1000 PURCHASE

Software Specials - MAC & Win.

Apple Mac OS 7.6/8/8.1/8.5 $49/59/69/89
AppleShare V4/IP 5/IP 6 $289/389/489
Apple PhotoFlash/Bundle CD $49/$69
ATM Deluxe/ Type Reunion Bundle$39/$65
Audiomedia III: Digi-Design Audio $689
ACT!V2.8/ AfterEffect V3.1 $135/$489
Bundle CD:ClarisWork,FWB, NisusW$79
Binuscan PhotoPerfect / Master $159/$589
CD Games/Color Access $9/$79
Canvas 5/ Calandar Creator $79/$29
Caere OmniPage Pro. V5/V8 $79/$179
CarereOmniForm 2/CalendarMaker$145/$39
Claris Bundle -FileMakerPro+Language Kits +EMail+Works+Impact+OS 8+ At Ease $289
Claris Works V4/V5 $49/$89
Claris Works V4 + FileMaker Pro V2.1 $79
CyberStudio V3/ Personal Edit. $279/$89
Conflict Catcher V3/4/8 $29/$49/65
Dimension V2/V3/DOS Mounter $69/99/49
Dantz Retrospect 4/ Remote $99/$149
DeBabelizer V3/FlashBack $269/$35*
Extensis MaskPro/PowerSuite $249/$169
Extensis PhotoTools/PortFolio $179/$89
Extensis Intellihance/Pro Tools $89/$689
Extensis QX-Effects3/Tools2 $115/$89
Extensis Prefight Designer/Pro $79/$329
FWB H/D ToolKits PE / V2.5 $29/$89
FileMaker Pro V4.1/4/2.1 $165/89/$49
FrameMakerV5/FrameViewer $389/$69
Fonts 2000+ / Adobe Fonts 200+ $39/$59
FlightCheck/Final EffectAP $359/$139
HomePage V1/V2/V3 $29/$49/$89
Language Kits/Arabic/Cyrillic $69/$69
Live Picture 2.1/2.5/2.6.1$99/$129/$179
Media CleanerPro 3.0/Netscape $289/$39
M.S. Office 98 + MCAfee VirusScan $99
NetObjects Fusion V2/ NowUtilities $69/49
Norton Utilities V3.5/4 $69/$89
Pantone ColorDrive/ColorWeb $69/$49
PageMill V2/V3/ATM $49/$89/$49
QuarkExpress V3.3.2/4/Immedia $689/629
Quicken V7/SE/Deluxe 98 $15/$19/$37*
RealPC / SpellCatcher $45 / $39
SAM V4/V5 $39/$65
SpeedDoubler8/ShockWave $39/$49
SoftWindows 98/95/Try Ver. $149/129/39
StrataStudioPro 2.1/ V2.5 $499/$589
SuitCase 3 / SpringClean $55/$39
StuffItDeluxeV3/V4.5 $35/$55
RAM Doubler II/Retrospect V3 $39/$79
Virex V5.8/ Virtual PC $58/$45
Vector Tools/ Vector Effect $89/$99
VirusScan V3/VirtualPC-WIN98 $39/$145
WebPainter/ Web Buddy $59/$35
Web Star/ WordPerfect 3.51$479/$79
Xerox TextBridge V3/Pro 8 $29/$49

Corel - DRAW V8(MAC & WIN) - $289

Corel Stock Photo/PhotoPaint $29/$79
HomePage V1/V3 $49/$85
WordPerfect V3.51 / Pro 8(WIN)$79/$99

LaserSoft - SilverFast - $129 (MAC & Win.)

STRATA STUDIO $439 w/ $500 PURCHASE

Adobe PhotoshopV3 - $189 (Old Ver.)

Photoshop V3/V4 $189/$289
Illustrator V5/6/7 $149/199/289
PageMaker V5/V6 $189/$249
Premiere V4/V4.2 $189/$289
Acrobat/StreamLineV4 $99/$99
Persuasion V3/V4 $89/$189

400MB Seagate Ext.H/D $99
1GB External Hard Drive $149
2GB 7200rpm Ext. H/D $199
Seagate 3GB Ext. H/D $209
4GB 7200rpm Ext. H/D $279
9GB Ext. AV Dr. H/D $399
9GB Atlas II Ext. only $489
9GB Cheeta Ext. only $729
18GB Atlas III Ext. $939

SONY DAT4000/5000/7000 $679/$779/$879
SyJet 1.5GB Dr. w/2X cart. $385
SyQuest 88C/200MB Ext. Drive $179/299
SyQuest EZ135/ EZ230 $109/$145
SONY 650MB/1.3GB M.O. Drive$589/$889
Fujitsu 230/640 MB M.O. Drive $199/$349

1GB/2GB JAZ Ext. $169/$289
SyQuest 200/270MB Dr. $249
DLT Tape Dr. - 30GB $1589
JAZ+CD-R Ext. only $399

Scanner: Polaroid 35LE - $739

Epson 836/636 Expression $2449/$689
LinoColor JADEII /SAPHIR $445/$1379
ScanMaker 6400XL / V $889/$2049
UMAX PowerLook III/3000 $CALL/$CALL
Agfa SnapScan / DuoScan $185/$679
Nikon CoolScan / Super $875/$1399

Digital Camera

Agfa e-Photo 307 $339
Canon PowerShot 350 $389
Kodak DC-260 $889
Nikon CoolPix 900 $835
Olympus D-500L2MB $745
Olympus D-600L4MB $889
SONY MVC-FD51 $449
SONY MVC-FD71 $649
SONY MVC-FD81 $749

PAINTER V5 ONLY $149 w/ $500 PURCHASE

Monitor & Display

15"/17"ColorMonitor $139/$229 (1280X1024, 0.26)
19"/20" ColorMonitor$469/$589 (1280X1024, 0.28)
Iiyama 19"/21" $689/$889
Optiquest 15"/17" $175/$235
Optiquest 19"/21" $439/$789

Display Card

iXMicro UltimaRez8MB - $259
ATI XCLAM3D 4/8MB $179/$239
IMS 4MB/8MB 3D $235/$369
RasterOpsPaintBoardNubus$189
Diamond Stealth (PCI-WIN) $39

Printer- Epson3000$1249

Apple 4/600 Laser $689*
Apple 12/600Color $2789*
Hp 6MP / 4000N $879/1379
Epson 1520 / PhotoEX $479/ea.

Disk Array - RAID

(External w/Cable, Fan, RAID S/W, Terminator)

8GB SCSI II	$489
8GB SCSI III F&W	$589
18GB SCSI II	$989
18GB SCSI III F&W	$1189
36GB SCSI II	$1589
36GB SCSI III F&W	$1989
54GB SCSI III F&W	$2989
72GB SCSI III F&W	$4489
108GB SCSI III F&W	$6889
144GB SCSI III F&W	$8989

Quantum SuperRAID

(External heavy duty power w/SCSI III Ultra Fast & Wide PCI Accelerator up to 80MByte /sec. ,68 Pin High Density Cable, Fan, Remus RAID S/W, 1024K buffer Active Terminator -
(AtlasII 7200 rpm,7.9ms)

18GB RAID- 2X9GB	$1489
36GB RAID- 4X9GB	$2689
54GB RAID- 6X9GB	$3989
72GB RAID- 8X9GB	$4989

(AtlasIII 7200 rpm,7.5ms)

36GB RAID- 2X18GB	$2989
72GB RAID- 4X18GB	$5589
108GB RAID- 6X18GB	$7789
144GB RAID- 8X18GB	$9789

(*Add $149 for Premiere V4.2 or M.S. Office 98 or 97 w/ RAID purchase)

PCI SCSI F&W Card

(PCI UltraSCSI Differential Up to 80MByte per secon.)

Adaptec REMUS	$149
Adaptec 2940UW	$249
FWB JackHammer	$389
Adaptec 2940U2W	$429

(MAC & WIN Available)

400MB+CD-R Ext.	$329
ZIP+JAZ+CD-R Ext.	$549
9GB+JAZ+CD-R Ext.	$889
18GB + CD-R Ext.	$1079

M.S. OFFICE V98 ONLY $149 w/ $500 PURCHASE

SyQuest

88/200MB $45/$69
135/230 $22/$39
1.5GB/270 $99/$75

DAT Tape

60/90M $5/6
120M/170 $13/77

INFINI-D V4.5 ONLY $399 w/ $500 PURCHASE

Iomega

1.0GB Jaz $78
100MB Zip $10

M.O. Disk

128/230MB $6/9
650/1.3GB $29/38

Computers:

G3 -233MHZ	$1389
G3 -266 DT	$1589
G3 -266 MT	$1749
G3 - 300 DT	$1939
9500/200MHZ	$1289
8600/300MHZ	$1789
9600/G3	$2689
9600/300mhz	$2579
9600/200MHZ	$2289
7350/180MHZ	$1989
Performa405	$249
9150 / WGS	$2089
PF405	$189
MAC IICX	$349
Q950/NuBus	$689
PM 6400/200	$889
PBG3/233	$2249
PBG3/266	$3649
PBG3/292	$5169
PowerCenterPro	$989
PoweTowerP/G3	$1589
UMAX S900/200	$1089
UMAX S900/G3	$1479

Targa 2000 Pro - AV $989 (Nubus)

ATI Xclaim AV	$289
DC30+ -PCI	$689
1000 -PCI	$1489
1000Pro -PCI	$1889
2000 -PCI	$2389
2000Pro -PCI	$2889
2000 - RTX	$5989*
BreakOut Box	$789*
2000 -SDX	$7979*
MediaCleaner3.0	$299
Premiere V4.2	$279
AfterEffect V3.1	$469

ADD $179 FOR OR ILLUSTRATOR V5.5 w/SYSTEM

macally/APS

HalfHeight/FH Cas	$49/89
Mouse/TouchPad	$25/$19
Port Xpander - 3	$55
Keyboard/w PAD	$29/39
Active Terminator	$19

M.S. OFFICE V4.2.1 $99 w/ $500 PURCHASE

Ext. CD-R Dr.& Accss.

Philips 2X/4X Dr.w/Tst Pro	$279
Teac 4X/12X Dr.w/Tst Pro	$389
Panasonic 4X/8X Dr.w/TstPr	$329
Philips CD-RW Dr.w/Tst Pro	$399
Ricoh CD-RW Dr.w/Tst Pro	$349
Yamaha CD-RW 4X/2X/6X	$449
Yamaha CD-RW 4X/4X/16X	$499
Toast 3/CD-COPY	$49/$55
CD Creator / JAM	$49/$189
CD-DA / M-Pack	$189/$179
CD-Label: Stomper Kits	$49
PicassoCDCr. Printer	$985
74Min CD-Disk	$1.69/ea.

Memory

	30 pin	72 pin	168 pin
4MB	$25	$19	-
8MB	**$29**	**$27**	**$27**
16MB	$35	$35	$35
32MB	-	**$59**	**$59**
64MB	-	-	$99
128MB	G3	-	$199

M.S. WORD 98 ONLY $199 w/ $1000 PURCHASE

Prices subject to change without notice Not responsible for typographical errors. 24 hour replacement limited to products in stock.

800-352-3410

Fax: 310-782-5974

385 Van Ness Ave. #110 • Torrance, CA 90501 E-Mail: imagesol@earthlink.net http://WWW.IMAGESOLUTIONS4U.COM

Image Solutions

FAST CASH

www.mactraders.com

For All Macs & Peripherals – Working or not

TOP DOLLAR PAID

MacTraders™ (800)990-0995

(310) 664-0664 Mon.-Fri. 9 AM-6 PM Sat.10 AM-4 PM (P.S.T.) Fax (310) 664-0665

2300 Lincoln Blvd. (One Light South of Pico), Santa Monica, CA 90405

SECURE TRANSACTIONS

ORDER ON-LINE AND SAVE SAVE SAVE

SECURE TRANSACTIONS

www.ForComputers.com

- MAC & PC PARTS
- NOTEBOOKS MONITORS
- HARD DRIVES PERIPHERALS
- MEMORY TONER

COMPUTER EXPERTS™ (310) 581-1500

Choose 439 at www.macworld.com/getinfo

MacGlobal

SYSTEMS AND PERIPHERALS • SALES AND SERVICE

Performas
410/466/476 Call
580 5/500/CD $549
631 8/500/CD $299
6200 8/1G/CD $399
5200 8/500/CD $699

Power Macs
G3 Call
7200 8/500 Call
7500 16/1 GIG Call
8500 16/1 GIG Call

Memory
4 MB 72-pin $8
8 MB 72-pin $15
16 MB 72-pin $30

PowerBooks
520 4/160 $325
520C 12/240/19.2 $485
540C 4/320 $575
5300 8/500 $625

Quadras
630 8/250 Call
650/800/840/950 Call

Printers
Stylw II $185
Stylw 1200 $175
Laser 300 $299
Laser 320 $449
Laser 4/600 Call

Monitors
14" Color $149
15" App. Multi. $199
17" App Multi. $325
20" Super Match $155
20" RADIUS $450

We Buy!

WE REPAIR MACS!

TOP DOLLAR paid for memory, PowerBooks and CPUs!

[800] 722-8864
Phone: [408] 265-6653
Fax: [408] 265-6660
WWW.GLOBALDEALS.COM

MacGlobal

Choose 438 at www.macworld.com/getinfo

Urban Computer

DISTRIBUTION

WE WILL BEAT ANY PRICE!!!

Largest Inventory to Select From

Order online at:

www.urbancomputer.com

1251 Alma Court, San Jose, CA 95112
Phone: 408-280-1133
Fax: 408-280-6840
E-mail: sales@urbancomputer.com

Choose 437 at www.macworld.com/getinfo

COMPU-D International, Inc.

Toll Free 1-800-929-9333

www.compu-d.com

MW 0399

* = Factory Refurbished with warranty
All prices are Cash Order Prices & subject to prior sale & change.

Apple, MAC, iMac, Mac OS, PowerMac, & PowerBook, are registered trade marks of Apple Computers Inc..

Get the Best for Less! Sales:(818)-787-3282 Fax:(818)-787-5555 e-mail:csales@compu-d.com

PowerBooks

G3/300 - - - - - - - -$3995
64/8GB ▲ DVD▲ Video ▲ 56K ▲ 14.1" TFT

G3/233 32/2GB ▲ 20xCD ▲ 56K ▲ 14.1" TFT -$2290

G3/300 64/8GB ▲ 20xCD ▲ 56K ▲ 14.1" TFT _$3595
G3/292 64/8GB ▲ 20xCD ▲ 56K ▲ 14.1" TFT _$3275
G3/266 64/4GB ▲ 20xCD ▲ 56K ▲ 14.1" TFT _$2695
G3/250 64/4GB ▲ 20xCD ▲ 56K ▲ 13.3" TFT _$2395
G3/233 32/2GB ▲ CD ▲ 56K ▲ 12.1" TFT ___$1895
G3/233 32/2GB ▲ CD ▲ 12.1" DSTN _____$1685
1400cs/166* 48/2GB ▲ CD _____$1185*
2300C* 8/750 ▲ Floppy ▲ Adapter _____$888*
3400C/200* 32/2GB ▲ CD ▲ 10BT ▲ 33.6 ___$1385*
5300cs/100* 32/750MB ▲ 14.4" Modem _____$689*

WACOM intuos

Graphic Tablets

Best Prices!

Printers

HEWLETT PACKARD

5M - - - -$945
4000N $1195

- MAC/PC
- PSL2
- Ethernet

LaserJets

4MV 16ppm, Eth, 11x17" _____$1025
6MP/5SIMX 600dpi_____$735/1749
4000/4000TN 17ppm _____$945/1295
5000/5000N 16ppm, 1200dpi, 11x17 _$1325/1895
8000/8000N 24ppm, 1200dpi, 11x17 _$2150/2395

EPSON Stylus Color Printers

800 /850N /740 . . .$229/449/259
Photo 700 /Photo EX . . .$229/445
3000 1440dpi, 11x17 . . . .$1175

PowerMacs

G3/333 Minitower - $2495
128/9GB ▲ 24xCD

iMAC Desktop & iMAC PB Starting at - - - - - - - $995

G3/300 MT AV 128/9GB U-W ▲ CD ▲ 6MB _$2495
G3/300 MT 64/8GB ▲ CD ▲ Zip ▲ 6MB VRAM _$1990
G3/300 DT 64/6GB ▲ 24xCD ▲ Zip _____$1675
G3/266DT 64/4GB ▲ 24xCD _____$1365
G3/233DT 64/4GB ▲ 24xCD _____$1199
9600 & 8600 Series _____$Call

NEWER G3 Upgrade Cards
All Models Available. Call

Apple DOS Card
Pentium 166, 16MB, Win 95, Dos 6.22 $199

Mac OS

We Offer A Great Selection of Major Name Brand PC Computers For Microsoft Windows.

COMPAQ IBM TOSHIBA

"As resellers of refurbished image setters, advertising in Macworld Shopper has been the key to our success! We have tried them all, Macworld simply works the best for us."

Carlos Lucero
Digital Reality

Macworld SHOPPER

THE BEST IN REMANUFACTURED
Macintosh
COMPUTERS & PARTS
Winter Specials!

- Power Mac 6100/66 — 24MB RAM/500MB HD/CD-ROM COLOR DISPLAY/KEYBOARD — $669!
- Apple 17" Multiscan — 60% MORE WORK AREA THAN A 14" MONITOR — $399!
- Color StyleWriters — STARTING AT — $ 199!
- POWERBOOKS — MODELS STARTING AS LOW AS — $299!

Pre-Owned Electronics
1-800-274-5343
Offices: 781-778-4600
Fax: 781-778-4848
VISIT US ON-LINE AT:
www.preowned.com

www.planet-e1.com
WE BUY, SELL AND TRADE MACS!
GREAT DEALS ON
USED MACS

Powerbook 2400c/180 16/2GB/CD $1199
Powerbook 3400c/200 16/2GB/CD/MOD $1399
HP 4MV New 600 dpi 16ppm/12MB Ram/11x17 page Ethernet/Postscript $979
Epson Stylus Pro XL $299 Post Script Option $249

Reconditioned PowerMacs

G3/266MT 32/6G8/24X/ENET	1899.
G3/300MT 64/4GB/24X/ENET	1999.
G3/300MT 128/2X4GB/24X8MVR	2149.
9500/233 16/2GB/CD/VC/KB	1195.
9500/132 16/1GB/CD/VC/KB	1029.
8600/300 32/2G8/12X/ZIP/KB	1599.
8500/180 16/1GB/CD/KB	939.
8500/132 16/1GB/CD/KB	859.
7600/132 16/1GB/CD/KB	729.
7500/100 16/1GB/CD/KB	689.
7300/180 16/2GB/12X/KB	999.
7200/120 16/1GB/CD/KB	659.
6500/250 32/4GB/24X/KB/MOD	949.
6500/225 32/3GB/12X/KB/MOD	829.
5500/225 32/2G8/24X/ETH/15"	1029.
4400/200 32/2GB/12X/KB	779.

G3 Powerbooks

G3 266 64/4G8/20X/56K/14.1A	2799.
G3 250 32/4GB/20X/56K/13.1A	2499.
G3 233 32/2GB/20X/56K/14.1A	2099.
G3 233 32/2GB/20X/56K/12.1P	1799.

We also carry a full line of monitors, printers, storage & upgrade cards

Reconditioned Powerbooks

3400c/240 16/3GB/12X/MOD	1599.
1400c/133 16/1GB/8X	1279.
1400cs/117 32/1GB	899.
5300ce/117 32/1GB	929.
5300c/100 16/750MB	749.
5300cs/100 8/500MB	599.
540c/33 4/320MB/MOD	579.

Upgrade your PPC to G3 power

215-225 G3 Sonnet 6100/7100/8100	399.
293-300 G3 Sonnet 6100/7100/8100	779.
233MHz G3 Sonnet 7300-9600	349.
266MHz G3 Sonnet 7300-9600	579.
300MHz G3 Sonnet 7300-9600	769.

Reconditioned Performas

6400/180 16/1.6GB/MOD/CD/KB	729.
5400/180 16/1G8/CD/15" Mon	879.

planet-e computers
(800) 607-2325
www.planet-e1.com
Fax (310) 671-9565

All prices subject to change without notice. All prices reflect cash discount.

MACINTOSH MEMORY UPGRADES

YOUR MACHINE	4MB	6MB	8MB	10MB	12MB	16MB	20MB	24MB	32MB	48MB	64MB	128MB	256MB
Apple PowerBook G3 & Wallstreet, Mainstreet			59			69			99	139	179	239	Call
Apple PowerBook 160, 165, 165C, 180, 180C, 190, 190CS	99	129	159	199									
Apple PowerBook 520, 520c, 540, 540c Notebook			49			69		89	109				
Apple PowerBook DUO 210, 230, 250, 270c, 280, 280c Notebook, 2300c/100 Notebook	49		69		75		89	109					
Apple PowerBook 1400			49			69		99	129	169			
Apple PowerBook 2400			39			59			89		139		
Apple PowerBook 3400						79			119	149	169	279	
Apple PowerBook 190/5300			49			69		89	109	149			
Apple Macintosh IIsi, IIci (Kit)	19					79					279		
Apple Macintosh IIfx (64 pin), IIvx & IIvi (Kit)	28					98					356		
Apple Macintosh Classic II, LC, LCII (Kit)			39										
Apple Macintosh LCIII, LC475, LC550, LC575, LC580, LC499, LC520, LC580, LC630, LC5200 (Kit)	8		19			49			89				
Apple Macintosh II, IIx, IIcx (w/Pal) (Kit)	32		64			98			196				
Apple Macintosh SE30 (Kit)	20					75							
Apple Performa 400, 405, 410, 430 (Kit)	16		38										
Apple Performa 450, 460, 466, 467, 475, 476, 550, 560, 575, 577, 578, 580	8		19			49			69				
Apple Performa 6110CD, 6112CD, 6115CD (pairs), 6117CD, 6118CD (pairs)	8		19			49			89				
Apple Performa 630, 630CD, 631CD, 635CD, 636, 636CD, 637CD, 638CD, 640CD	8		19			49			89				
Apple Performa 5200 Series 5200CD, 5215CD, 5300, 6100 Series 6116CD (pairs)	8		19			49			89				
Apple Performa 6200 Series 6200CD, 6216CD, 6218CD, 6220CD, 6230CD, 6290	8		19			49			89				
Apple Performa 6205CD, 6214CD, 6300CD, 6320	8		19			49			89				
Apple Performa 6400CD, 6360 (2K Refresh)						49			89		169		
Apple Centris 610, 650, 660 AV	8		19			49			89				
Apple Quadra 605, 610, 630, 650, 660AV,800 (pairs), 840AV	8		19			49			89				
Apple Quadra 700, 900, 950, Apple Performa 600, 600CD (Kit)	20		40			79			158		275		
Apple iMac (SDRAM)						***59***			***89***		***139***	***259***	
Power Macintosh G3 (all models)						***39***			***59***		***109***	***209***	***499***
Power Macintosh 4400/160, 5200, 5260, 5300, 5400, 6400/200, 6500/225, /250, /275, /300 (Edo)			29			49			89		169		
Power Macintosh 6200/75, 6100/60, 6100/66, 6100/66AV (pairs)	8		19			49			89				
Power Macintosh 7100/66, 7100/80, 7100/66AV (pairs)	8		19			49			89				
Power Macintosh 7200/75, /90, /120, /120PC, 7300/166, /180, /200, 7500/100, 7600/100, /120, /132, /200						49			89		169		
Power Macintosh 8100/80, /100, /110, 8100/80AV, /100AV, /110AV (pairs)	8		19			49			89				
Power Macintosh 8500/120, /132, /150, /180, 8600/200, /233, 9500/120, /132, /150, /180MP, 200, 9600/200, /233, /200MP						49			89		169		

ORDER ONLINE AND RECEIVE UP TO A 10% DISCOUNT!
WE ALSO BUY BACK YOUR OLD MEMORY CALL FOR QUOTE

The Memory Liquidators, Inc.
(800) 718-7755
www.memoryliquidators.com or E-mail: sales@memoryliquidators.com
531 Main St., El Segundo, CA 90245 Ph. 310-326-5656 • Fax 310-326-7790 • M-F 7 to 5; Sat. 8 to 12 noon PST
• Secure Web Site • Prices subject to change without notice • 20% restocking fee on all returns.

Lifetime Warranty on all Memory
Gov't & Educational P.O's & Credit Cards

POWER COMPUTING/MOTOROLA

	16 MEG	32MEG	64MEG
POWER 80, 100, 110, 120	49.00	89.00	169.00
POWER CENTER 120, 132	49.00	89.00	169.00
POWER CENTER 160, 166	49.00	89.00	169.00
POWER CENTER 180	49.00	89.00	169.00
POWER CURVE 601/120	49.00	89.00	169.00
POWER TOWER 166/180	49.00	89.00	169.00
POWER TOWER PRO 180	49.00	89.00	169.00
POWER TOWER PRO 200, 225	49.00	89.00	169.00
POWER WAVE 604/120	49.00	89.00	169.00
POWER WAVE 604/132, 150	49.00	89.00	169.00
POWER BASE (EDO)	49.00	89.00	169.00
MOTOROLA STARMAX 3000 EDO/160, 200; 4000/160, 200	49.00	89.00	169.00

APPLE POWERBOOK BATTERIES

Powerbook 140, 145, 150, 160, 165, 170, 180	69.00
Powerbook 1400, 190, 190CS, 3400, 5300	133.00
Powerbook 2300, 520, 520C, 540, 540C	123.00
Powerbook DUO 200, 210, 230, 250, 270, 280	112.00

CHECK OUR WEBSITE FOR ALL BATTERIES!!!

Powerbook 1400/3400/G3 Hard Drives

2.1 Gig	3.2Gig	4.0 Gig	5.0 Gig	6.4 Gig
349.00	449.00	499.00	549.00	699.00

Powerbook Fax Modem
56K Fax Modem — 139.00

NO SURCHARGE FOR MASTERCARD, AMEX, VISA OR DISCOVER. PURCHASE ORDERS ACCEPTED FROM FORTUNE 2000, GOVERNMENT & INSTITUTIONS. California orders add 8.25% sales tax. Returned orders or ordered wrong parts are subject to a 20% restocking fee. We accept international orders shipped via UPS Air. APO, FPO orders welcome. Customers are expected to pay customs and "other" charges if shipped int'l. All credit card charges verified for fraudulent use. SORRY, No Refunds after 30 Days – Exchanges Only. If you receive defective merchandise we exchange only—no refunds. We accept MC, VISA, Discover, AE, prepaid orders, purchase orders, wire transfer, COD (cashiers check), cash & cashiers checks. Orders shipped by UPS, FEDX must be signed for. • All manufacturers part #s are for ref only. • Min. Order $40. • No refunds on shipping

Now with SECURE Online Ordering!

DMS Data Memory Systems

1•800•662•7466

WORKS WITH iMac

EPSON 740 Ink Jet Color Printer

UMAX USB Color Scanners

iMac Memory Upgrades

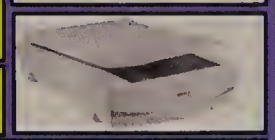
iomega USB Zip Drives

Pentium II Systems

Hard Drives & CD-ROM

Fax/Modems v.90

Networking Products



Color Scanners

CPU Upgrades

Data Memory Systems Inc. 24 Keewaydin Dr., Salem, NH 03079

Fax:: 603.898.6585 / Email: sales@datamem.com

Shop online: www.datamem.com

Government, Commerical, Educational P.O.s accepted with prior approval

Choose 442 at www.macworld.com/getinfo

WHY IS THE COMPETITION SHAKING?

BECAUSE 1•800•4•MEMORY IS HERE

WE CAN BEAT ANY QUOTED PRICE ON ANY MEMORY FOR ANY COMPUTER (NOTEBOOK, DESKTOP, PRINTERS) ANYWHERE . . . PERIOD!

- LIFETIME WARRANTY
- FREE TECH SUPPORT
- NO CREDIT CARD SURCHARGE
- MOST ORDERS SHIPPED SAME DAY

CALL AROUND THEN CALL US

CHECK OUR WEB SITE FOR SPECIALS

WWW.18004MEMORY.COM

"As a leading developer of PC-to-Mac connectivity software, Miramar Systems relies on reaching a captive readership of Mac OS-based buyers and decision makers. Macworld Magazine's Shopper section has consistently out-performed other Mac publications that we've advertised in with higher recall and quality leads. A lot of magazines talk about their 'value add', but Macworld Magazine truly delivers."

Renee Cooper, Director of Marketing, Miramar Systems, Inc.

www.miramarsys.com

Great Deals on USED MACS

Check It Out!

9500/120	16/1gb/4x	$ 950
8500/120	16/1gb/4x	900
7500/100	16/1gb/4x	700
7200/90	8/500/4x	550
6214	8/1gb/2x	500
7100/66 AV	16/700/2x	525
6100/60	8/230	325
PwrBook 1400cs/117	12/750	875
PwrBook 5300c/100	16/750	800
PwrBook170	8/80	325

Prices subject to change. Limited to stock on hand, subject to prior sale. Call for up-to-the minute inventory & prices. 1211

WE BUY, SELL & TRADE MACS!

MAC Solutions

www.macsolutions.com

Authorized Value-Added Reseller Service Provider

(800) 80-WE-BUY

MEMORY

ABSOLUTELY, POSITIVELY, THE BEST PRICES!

WE'LL BEAT ANY PRICE!*

Plus, Lifetime Warranty on all RAM!

★ iMAC & PB G3 RAM ★	
32/64 mb	$ 53/97
128 mb	193
128 mb low profile	308

SDRAM-In Stock!	
64mb	$ 89
128mb	180
256mb	453

All prices are subject to change. Not responsible for typographic errors. Limited to stock on hand.

PowerBook Memory		
48/64	G3/3400	$ 95/117
128	G3/3400	214
16/24/32	1400	43/60/78
32/48	5300	82/114
16/32	500	40/78

168 Pin DIMMs	
16/32 mb	$ 37/73
64/128 mb	145/230
64 mb 3.3v/EDO	128

Cache/VRAM		
44/64/65	512k	$ 45
61/7100	256k	10
1 mb	VRAM	16
4mb	G3 VRAM	23

SIMMs 72 & 30 pin		
72	16mb/32mb	$ 36/71
72	64mb	122
30	4mb/16mb	9/27

PRINTER MEMORY & PC/LAPTOP MEMORY IN STOCK - CALL !!

Storage Specials	
Quantum 3.2 gb SCSI	$ 200
PB53/1400 2.1 gb IDE	275
Iomega Zip w/cart	112
Iomega 2/1 R/W Jaz ext	320
LaCie Teac 4x12 CDR	395
Iomega Zip 10 pak	90
Jaz Carts 1 & 2 gb (each)	80
ATI Nexus GA 2/3D 8mb	225

Authorized Value-Added Reseller Service Provider

MacSolutions, Inc. Fax: (310) 966-4433

11933 Wilshire Blvd, West Los Angeles, CA 90025

University & School P.O.'s Welcome . Ad code #1211

Secure Online Ordering @ www.macsolutions.com

(800) 873-3RAM

MAC Solutions

AWARD-WINNING UPGRADES!

G3

SONNET
SIMPLY FAST™

3 YEAR WARRANTY!
FREE TECHNICAL SUPPORT!

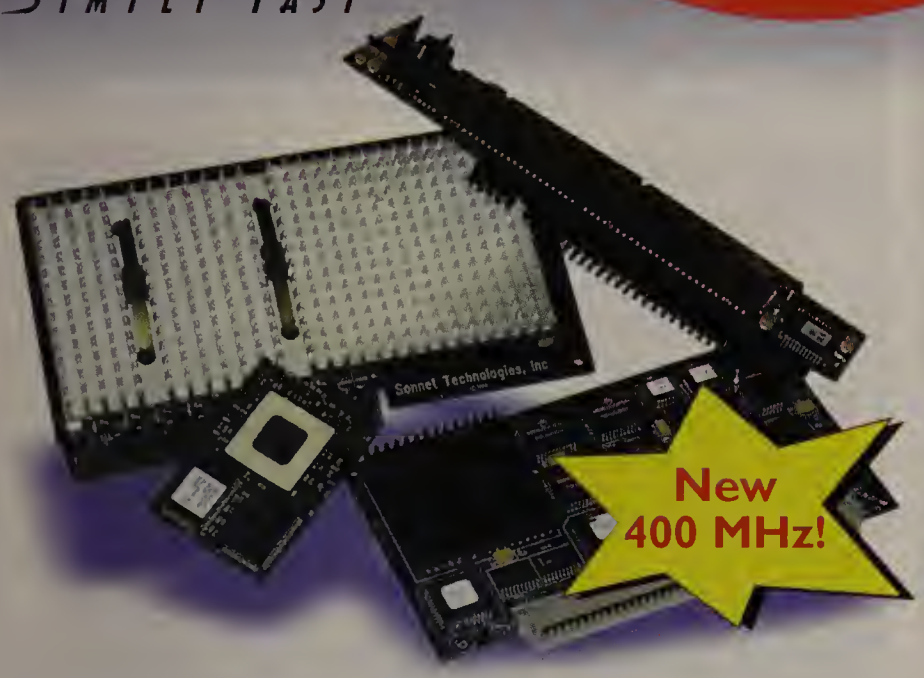
Mac ADDICT RATED — FREAKIN' AWESOME! www.macaddict.com

Macworld EDITORS' CHOICE

Rating ★★★★ Mac Reviews

MacDirectory Best Buy Awesome!

MacHome



Sonnet™ Technologies manufactures the finest Macintosh processor upgrade cards for a wide range of computers including NuBus, PCI, and G3 Power Macs. All Sonnet G3 cards:

- match or beat the CPU performance of a new G3 system.
- are backed by a three-year warranty.
- feature plug-and-play installation.
- have no switches or control panels to set.
- are 100% software compatible.

We now have video card support for the 6100 AV. If you have a 7100 or 8100 with a video card in the PDS slot just install one of our 7100 or 8100 Adapter Kits. Or install a Sonata Pro 24 for comparable or superior performance to the Apple PDS AV and High Performance Video Cards.

Need more speed for your G3? The Encore delivers the ultimate in performance. From operating graphics programs with power-hungry filters, to motion-based processing for video and animations, you can expect head-turning performance gains from your newly upgraded G3 Mac.

CRESCENDO UPGRADE CARDS FOR NUBUS MACS

Power Mac 6100/7100/8100/8115 • Wrkgrp Srvr 6150/8150/9150
Performa 6110/6112/6115/6116/6117/6118 • Radius 81/110

Crescenda G3 233 MHz/117 MHz/512K Cache (except 6100AV)	$399.95
Crescendo G3 233 MHz/117 MHz/512K Cache (6100AV only)	$449.95
Crescendo G3 266 MHz/133 MHz/1MB Cache (except 6100AV)	$599.95
Crescendo G3 300 MHz/150 MHz/1MB Cache (80/110 MHz Macs)	$799.95

Video Options

71/8100 PDS AV/Video Adapter Kit far Crescenda G3	$99.95
7100/8100 Sonata Pra 24 Accelerated NuBus Videa Card	$199.95

CRESCENDO UPGRADE CARDS FOR PCI MACS

Power Mac 7300/7500/7600/8500/8515/8600/9500/9515/9600
Wrkgrp Srvr 7350/8550/9650 • PowerTower • PowerTower Pro
PowerWave • UMAX J700/S900 • DayStar Genesis 528

Crescendo G3 233 MHz/117 MHz/512K Cache	$349.95
Crescendo G3 300 MHz/150 MHz/512K Cache	$499.95
Crescendo G3 300 MHz/150 MHz/1MB Cache	$599.95
Crescendo G3 333 MHz/167 MHz/1MB Cache	$799.95
Crescendo G3 366 MHz/183 MHz/1MB Cache	$999.95
Crescendo G3 400 MHz/200 MHz/1MB Cache	$1299.95

Power Mac 44/54/55/6500 • Performa 54xx/6360/64xx
20th Anniv. Mac • PowerBase

Crescenda G3/L2 240 MHz/120 MHz/512K Cache	$399.95
Crescendo G3/L2 300 MHz/150 MHz/512K Cache	$499.95
Crescendo G3/L2 300 MHz/150 MHz/1MB Cache	$599.95

ENCORE G3 UPGRADE CARDS FOR G3 POWER MACS

Power Mac G3 All-in-one/Desktop/Tower

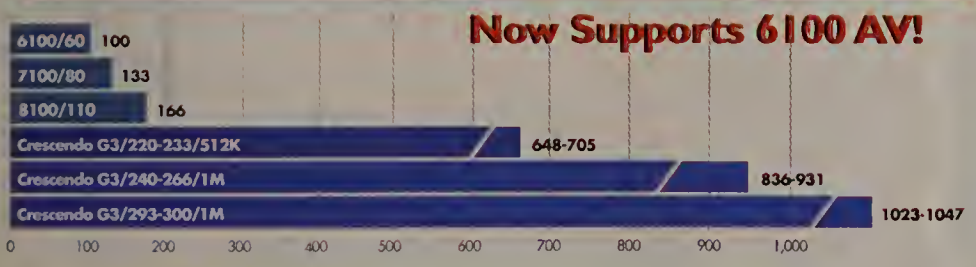
Encare G3 366/183 MHz/1MB Cache	$999.95
Encore G3 400/200 MHz/1MB Cache	$1299.95

PRESTO 040 PROCESSOR UPGRADE CARDS

MacIIci*/IIsi*/IIvi/IIvx • Performa 600

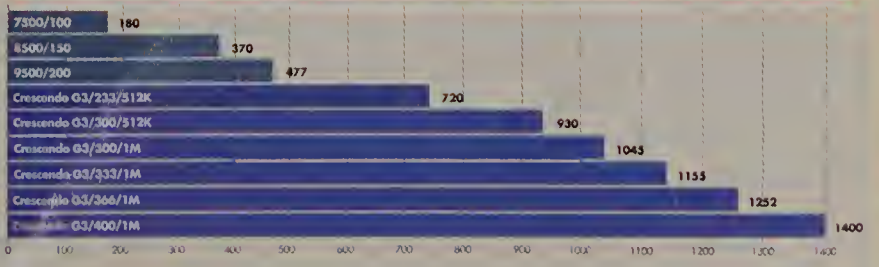
Presto 040 80/40 MHz 68LC040/128K Cache	$199.95
Presta 040 80/40 MHz 68040/128K Cache/FPU	$299.95
*Adapter required for IIcx, IIsi	$99.95

Run Your NuBus Power Mac at G3 Speeds Up to 1047% Faster!



(MacBench 4.0 scores)

G3 Speeds Up to 778% Faster for Your PCI Power Mac!



(MacBench 4.0 scores)

Sonnet Technologies, Inc.
18004 Sky Park Circle, Irvine, CA 92614
Tel: 949-261-2800 Fax: 949-261-2461
E-mail: sales@sonnettech.com

VISA MasterCard AMERICAN EXPRESS

800-786-6260
http://www.sonnettech.com

Visa, MasterCard and American Express no surcharge. Government, corporate and education P.O.s welcome. Sonnet products are covered by a three-year limited warranty. Prices are subject to change without notice. Returns require an authorization and are subject to a restocking fee. Sonnet, the Sonnet logotype, Crescendo, Encore, Presto, Simply Fast, and the Simply Fast logotype are trademarks of Sonnet Technologies, Inc.
©1999 Sonnet Technologies, Inc.

MAC REPAIR & UPGRADE

24 HOUR SERVICE TURNAROUND • LONGER WARRANTY
FREE DIAGNOSTIC • COMPETITIVE PRICE

* Specialize in component repairs:
  •Power Mac • Power Book • Logic boards
* Advance Exchanges

DT&T MACINTOSH SERVICES, INC.

800-622-7977

720 East Evelyn Ave., Sunnyvale, CA 94086 • Tel: 408-720-9899 • Fax: 408-720-9459
http://www.dttservice.com

Choose 445 at www.macworld.com/getinfo

800-WE-FIX-MACS

THE ONLY NUMBER FOR ALL MACINTOSH PARTS

- Free Diagnostics
- 24 Hour Turnaround
- Longest Warranties
- Largest Inventory of Parts
- Advance Exchanges

PowerComputing Specialists

2202 N. FIRST STREET, SAN JOSE, CA 95131 • 800 933-4962 • www.allmac.com

Choose 444 at www.macworld.com/getinfo

1000 ultra-thick full color business cards $60!

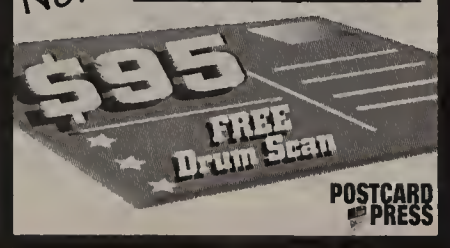
Full color, thick stock and glossy UV coating included!

Ready in 5-7 workdays from your digital file!

Call now for a FREE sample kit!

800 957-5787
www.postcardpress.com

New! 500 full color postcards!



DIRECT RESPONSE. DIRECT RESULTS.

Macworld SHOPPER

WHOLESALE WATERLESS COLOR PRINTING FROM YOUR COMPUTER FILES

1000 FULL COLOR BUSINESS CARDS FOR $100 Sug. retail price $179
1000 FULL COLOR POSTCARDS FOR $149 Sug. retail price $249

Printed waterless at 300 line screen from your computer files on Super Premium 10pt. Kromekote Stock with FREE aqueous coating.

- BUSINESS CARDS
- POSTCARDS
- CD INSERTS
- CD TRAY LINERS
- BROCHURES
- BOOKLETS
- NEWSLETTERS
- POSTERS & MORE

Try Our Fast 4/C Print Quotes!

Save Money! Upload Your Files to Our FTP Site at ftp.copycraft.com

300 LINE SCREEN WATERLESS OFFSET PRINTING

RATES FOR BROCHURES, BOOKLETS AND FLAT SHEETS ARE ALSO AVAILABLE.

4-COLOR WATERLESS SPECIAL

1,000 PRESENTATION FOLDERS $1499
9" x 12" 4-Color folders with 4" pockets and BC slits printed 4/0 from your files at 300 line screen on 10 pt. Kromekote with FREE Aqueous Coating.
Get 2,000 Brochures for only $2,199
SUGGESTED RETAIL $2,299

GRAPHIC ARTS AVAILABLE

Copy Craft PRINTERS, INC.

QUARK. Authorized Service Bureau

Factory Authorized COREL Service Bureau

4413 82nd Street • Lubbock, TX 79424 • FAX: 806.794.1305

Email your requests for printing quotes to request@copycraft.com

1.800.794.5594

CALL TODAY FOR A FREE COPY OF OUR NEW 28-PAGE FULL COLOR CATALOG

Visit our Web Page for more 4-Color Specials at http://www.copycraft.com

Choose 446 at www.macworld.com/getinfo

Macworld SHOPPER

Memory & Upgrades

Repair • Data Recovery • Printing Services

MEMORY SPECIALISTS

Tahoe Peripherals

Serving the Mac Users memory needs since 1991.

We sell only NEW, Grade A, Full Apple Spec RAM

800-440-5343

Fax 702-823-2200

760 Margrave, Ste. 100, Reno, NV 89502

www.tahoeperipherals.com

MEMORY

"Computer Show" Prices Everyday!

Mohawk Memory Co., Inc.

SIMMS ◆ DIMMS ◆ EDO ◆ ECC ◆ VRAM ◆ CACHE ◆ PRINTER ◆ SDRAM ◆ POWERBOOK

G3 Memory Available

Fax: (978) 897-0009

Email: simdim@mohawkmem.com

Webstore: www.mohawkmem.com

16A Waltham St. Maynard MA 01754

Visa MC Discover AMEX PO's O.A.C.

1(800) 986-6429

Good Old-Fashioned New England Service

PLUG IN!

Create Your Own Full Color Custom Promotional Cards To Market Your Business, Products & Services • Feature Websites, CDs & New Technology • Ideal For Mailers, Self-Promotion, Invitations & More! • Call **Now** for More Information & Free Samples!

Full Color Promo Cards $95 500 copies

Modern Postcard™

1-800-959-8365

www.modernpostcard.com

©1993 Modern Postcard All rights reserved

MacTECHS INTERNATIONAL

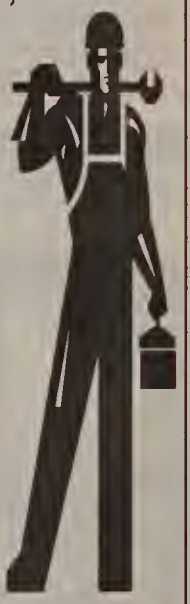
Macintosh Repair, Sales & Upgrades

24 Hour Turnaround

Powerbook Specialists

$99 iMac Floppy Drive

Great Memory & Hard Drive prices



3337 El Camino Real

Palo Alto, CA 94306

Phone: 650.845.6400

Fax: 650.845.6411

www.mactechsinc.com

1-888-622-3493

WE GET TO THE CORE OF THE PROBLEM

Fast & affordable **Indigo** & **Heidelberg** Digital Printing

Visit our web site for prices and file transfers.
or call toll free 1-888-999-2638

Marketers Did You Know...

- *77% of Macworld subscribers read advertisements extremely closely*

and...

- *71% of Macworld subscribers plan to spend $5,000 - $10,000 during the next 12 months on Macintosh hardware, software and peripherals.*

*Source: InfoQuest CIMS v5.0

Macworld SHOPPER

It's all you need to know.

DATA RECOVERY

For MAC - (Hard Drives, Opticals, Removables)

By Nick Majors' DATA RECOVERY LABS

"The Best Data Recovery Service available - Anywhere - at any Price!"

Dedicated In-house MAC specialists are available to work on your emergency data recovery. Complete facility with clean rooms and full MAC capabilities.

Free evaluations. All recoveries are 100% satisfaction guaranteed. Complicated / top priority projects are our specialty.

Datarec.com™ DATA RECOVERY LABS

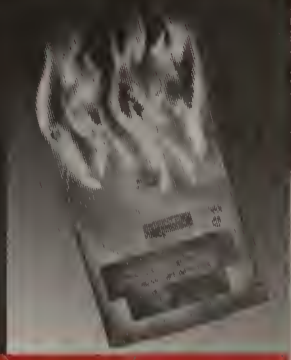
USA • Canada • Japan • Brazil

1-800-563-1167

www.datarec.com

PROFESSIONAL DATA RECOVERY SERVICES.

Hard Drives, Floppy Drives, Syquest, EZ-135, ZIP, JAZ, Optical & Bernoulli.



TOTAL RECALL®

THE DATA RECOVERY COMPANY™

800 743-0594

VISIT US AT... www.recallusa.com

2462 WAYNOKA ROAD • COLO. SPRINGS, CO 80915 • TEL (719) 380-1516 • FAX (719) 380-7023

Choose 448 at www.macworld.com/getinfo

DATA RECOVERY: 800-440-1904

7 good reasons to choose DriveSavers:

1. We're the most trusted and respected data recovery specialists.
2. 24-hour, onsite, and weekend service available.
3. Proprietary techniques so advanced we retrieve data others might simply abandon.
4. Over 12 years of data recovery experience.
5. Certified to maintain most drive warranties.
6. Featured by CNN, NextStep, C-Net, Forbes.
7. All storage devices; Mac OS, DOS, Win95, WinNT, OS/2, UNIX, Sun, SGI, Novell.

©1997 DRIVESAVERS, INC.

Clip and save this ad. Visit DriveSavers at: www.drivesavers.com

DRIVESAVERS, INC. 400 BEL MARIN KEYS BLVD., NOVATO, CA 94949, INTL.: 415-382-2000, FAX: 415-883-0780

Choose 454 at www.macworld.com/getinfo

Digital Imaging

Slides & Negatives $3.75
4x5 Chromes/Negs $30
Large Posters & Displays $45
Scanning: Hi & Lo Res
Photo CD Scans & LVT Output
Short Run 1200 dpi Color Output
Quantity Prints, Slides, Overheads
Show & Tell 39 W 38th St., NY, NY 10018
212 840-2912 • 212-840-7953 (fax)

Choose 450 at www.macworld.com/getinfo

Great Prices!

Visit our web site...we offer direct to press on our Indigo, Heidelberg, & Xerox Docucolor. Also,big digital posters, Pro/Master PhotoCD, & Fuji Color Pictrography Prints. Our expert Special Services Teams will ensure that you're pleased with your work.

Use The Best!

Send PC/Mac files by FTP or Priority Air Express to Imagers and for most output services, your finished work is in your hands the very next morning.

We guarantee our work!

IMAGERS®

Digital Production Center
Go online for tech help,quotes,ordering!
800.672.7029/404.351.5800
1575 Northside Dr.Ste.490 Atlanta 30318
www.imagers.com

Choose 452 at www.macworld.com/getinfo

data recovery

www.mcrecovery.com

When you absolutely, positively have to get your data back... Be assured MicroCom will guide you through the recovery process... Diagnostic reports back to you within hours, with step- by-step updates on every recovery situation. Call now for an immediate consultation.

MICROCOM
20802 Plummer St. Chatsworth, CA 91311 • 818 718-1200
800 469-2549

Michael Snyder, President

Macworld SHOPPER

Data Recovery in hours.

- Over 10 years of experience with clients worldwide including Apple, NASA, HP, and FedEx.
- We've recovered more than half-a-million megabytes of Mac Data alone.
- You only pay when there's a recovery.
- Express One-Day Service is available.
- Call 24 hours a day.

415-495-5556 • FAX 415-495-5553 • RESTRICTIONS MAY APPLY
381 Clementina Street • San Francisco, California 94103

LAZARUS
DATA RECOVERY
Working at the speed of business.
800-341-DATA

Choose 453 at www.macworld.com/getinfo

DIRECTORY

COMPUTER INSURANCE

INSURES YOUR MAC

The Computerowners (sm) insurance policy repairs or replaces hardware, media and purchased software. $49 a year covers up to $2,000 of equipment against theft, fire, accidents, power surge, natural disasters and more! $50 deductible. Call for immediate coverage or information. 1-800-800-1492.

SAFEWARE, The Insurance Agency, Inc.
5620 N. High Street, PO Box 656
Columbus, Ohio 43085

Choose 442 at www.macworld.com/Getinfo

CLIP ART

GET FREE CLIP ART!

3000 Image Mega Pack FREE from Nova Development! Premium-quality color clip art ideal for beginners and experts. Fully scalable, compatible with all popular word processing, graphics and desktop publishing programs. Guaranteed to print perfectly on all printers (B&W or color) Mention Code 617 to get this CD for $4.95 S&H.

NOVA DEVELOPMENT CORPORATION
800.395.6682-US or Canada/818.591.9600-Outside

WE'VE GOT THE MAC MARKET COVERED

ON-LINE

MacWEEK.com

«eMediaweekly.com»

iMacworld

WWW.MACWEEK.COM

GET IT ALL HERE NOW -- NEWS, MAC THE KNIFE, MAC/BUSINESS AND MORE!

WWW.EMEDIAWEEKLY.COM

THE CENTRAL CLEARING HOUSE FOR NEWS AND INFORMATION IN THE DIGITAL PUBLISHING ARENA -- FEATURING OVER 500 LINKS!

WWW.IMACWORLD.COM

GAMES, GADGETS, GEAR -- IF IT'S FUN, YOU'LL FIND IT HERE!

Attention Marketers!
80,000+ Unique Visitors/Day
7,000,000 Page Views/Month
We've got **you** covered!

Macworld online

WWW.MACWORLD.COM -- WE'VE GOT IT ALL COVERED.

The Desktop Critic

by David Pogue

CompUSA: Apple's Not-So-Superstore

IF THIS IS THE BEST NATIONAL MAC CHAIN, I'D HATE TO SEE THE WORST

"I'M HERE TO BUY MY VERY first computer," I tell the young guy in the red CompUSA shirt. "Something really easy to use, for the Internet and word processing." Without a word and without ever making eye contact, Mr. $6-an-hour turns. He strides right past six iMacs in the Apple "store within a store" and stops beside a boring Wintel box.

"Here you go," he says, "$899. Monitor's extra."

I play even dumber. "Is this one of those, um, iMac thingies?"

He scoffs. "Oh, you don't want one of those. You can't put floppy disks in 'em. Besides, there's no software for Macs. This shelf right here—that's all we got for Macs. The 30 shelves over there are all for Windows."

So I pluck a package from a Windows-software shelf. "What about this?" I point to a bright yellow sticker on the box that says: "For Mac OS and Windows 95."

My guy grabs the box and puts it back on the shelf. "No, that's for Windows."

Pathetic, yes; unusual, no. For two months, I've been dropping in on CompUSA stores in five states, posing as a computer dummy to see how Apple's hand-picked national retailer represents our favorite computer. On Long Island, New York, the salesman answered my question about the iMac by saying, "I don't know anything about 'em—nobody here does." In Connecticut, I was told emphatically that there's no way to run Windows programs on the Mac. And in Philadelphia, one sales kid claimed that the iMac doesn't have "a level cache" (!).

Unfortunately, the problem of uninformed, Mac-bashing CompUSA staff is a nationwide phenomenon. Visit the CompUSA Watch Web page (www.macsonly.com/acu.html), for example. The depressing table there indicates just how lousy the Mac-oriented staff, setup, hardware, and software offerings are at each of the 225 CompUSA stores.

So who cares? After all, there are 3,500 other places to buy Macs: independent Mac dealers, savvy smaller chains such as Fry's and MicroCenter, and mail-order joints.

But CompUSA, as the only *national* authorized computer chain, is by far the most visible Mac retailer. Before Apple cut other chains out of the action, what most Americans saw of Macs was sad indeed: disconnected, crashed, and mouseless Macs on dusty shelves. In exchange for exclusivity, CompUSA promised to give Apple a decent presentation.

Apple has certainly done its part to take advantage of the arrangement. An eye-catching self-running demo plays on the screens of most display Macs. In many stores, Apple reps hang out to answer questions on weekends. During the holidays, Apple cut a $30 check to each clerk for each iMac sold. And for big store events, such as the rollout of the iMac or Mac OS 8.5, Apple has harnessed the enthusiasm of local user-group members—a grass-roots, win-win marketing masterstroke.

So why are the young clerks at CompUSA so comically—make that tragically—ill-informed? CompUSA says that it's simply impossible to hire enough knowledgeable staff, especially Mac people. "Getting staff is a problem across the board," says Suzanne Shelton, the company's PR director. "We need specialized talent; finding it can be a challenge."

OK, so pay more, or solicit help from user groups, or hold training seminars; whatever the excuse, CompUSA simply isn't holding up its end of the sweet Apple deal. In steering potential buyers *away* from Macs, store clerks make a mockery of CompUSA president Jim Halpin's 1997 promise to make his stores "the Apple headquarters for America."

In light of all this, it's doubly amazing that CompUSA's Mac sales are screaming. Maybe that's because the Apple display areas are attractive and the Macs irresistible, even when they're unmanned. Or maybe it's the local Mac fans who sneak in to "volunteer," spending each Saturday answering questions, moving Mac/Windows software boxes into the Mac area, fixing icons that customers have renamed "ZVSFZZZZ," and so on. And here and there, in the occasional CompUSA outlet, there's even a Mac-savvy worker. (Exactly one CompUSA guy—in Beachwood, Ohio—won my little game of Help the Dummy. He immediately led me to an iMac and then made it speak, run Windows programs in Virtual PC, and play a movie. I almost bought one despite myself.)

Perhaps in frustration over the CompUSA situation, Apple recently authorized a second chain to sell iMacs: Best Buy. Well, *that'll* certainly help. Now we're counting on those young, underpaid, poorly trained employees to know Macs and Windows—*and* VCRs, cameras, and toaster ovens.

Come to think of it, maybe CompUSA isn't so bad after all. **m**

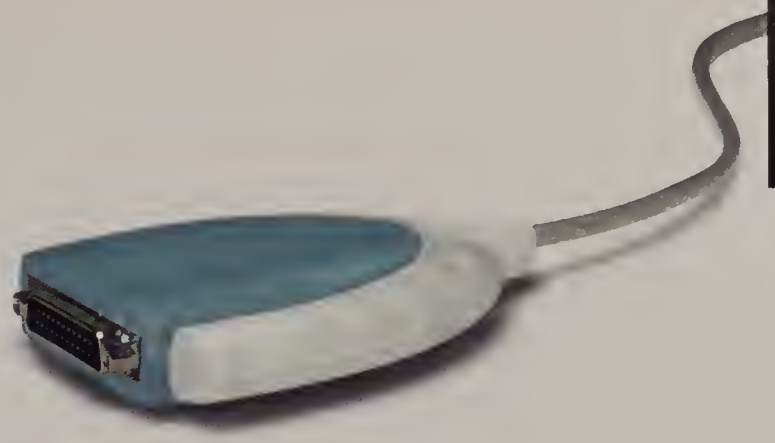
DAVID POGUE (www.davidpogue.com) is the author of *The iMac for Dummies* (IDG Books Worldwide, 1998).

PETER HOEY

Sometimes Newer Is Better Than New.

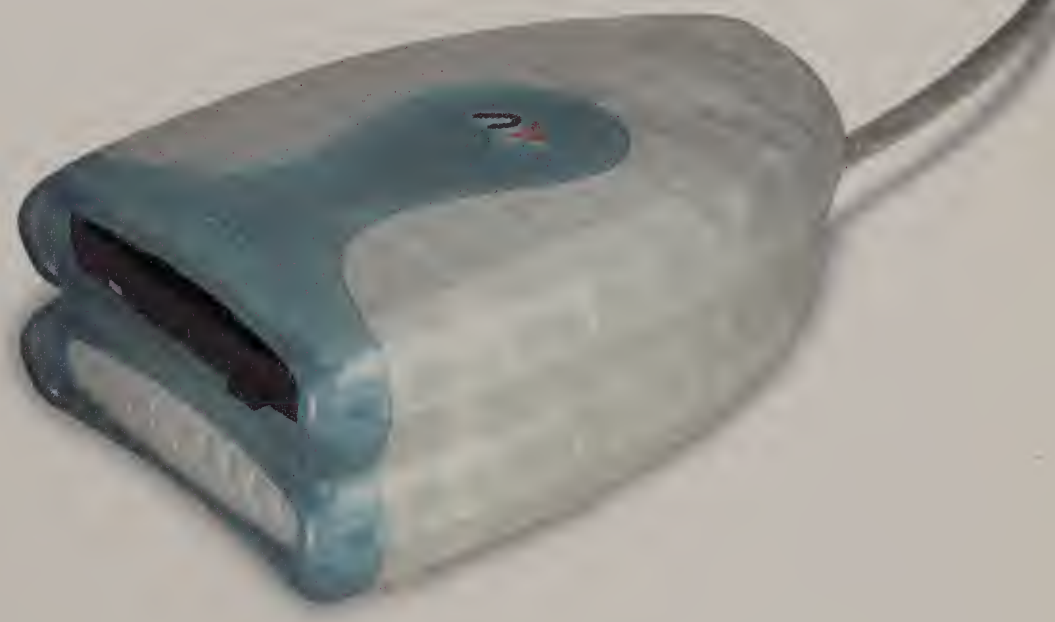
uSCSI™

Don't pack away those SCSI peripherals just yet. With a uSCSI cable you can plug your trusty old SCSI devices into USB ports, and daisy chain up to seven SCSI devices from one USB port. Just plug your peripherals in and turn them on. No rebooting is necessary.



uFlash-CF™ and uFlash-SM™

One of the advantages of a digital camera is saving time. But as image quality increases, so does file size. Enter uFlash-CF and uFlash-SM. Acting as removable disk drives for CompactFlash media and SmartMedia peripherals, these readers will transfer data up to 80 times faster than serial cables. Now you can take pictures, remove the disk from your camera, insert it into uFlash, and go right back to shooting. Suddenly your digital camera really is saving you time.



uDrive™ and uHub™ (Stacked together)

It comes in Ice Blue, it's inexpensive, and it completes your iMac. Unfortunately it doesn't come with your iMac. NewerTechnology's uDrive gives you the flexibility to transport files and install software with ease. Simply plug it into a USB port on your iMac and pop in a floppy. And, best of all, it stacks nicely with all your other USB peripherals from NewerTechnology.

USB allows you to attach up to 128 devices simultaneously, and NewerTechnology's uHub helps you keep it all organized. This seven port powered hub makes it incredibly easy to connect keyboards, mice, printers, monitors, cameras, speakers, storage devices, and other USB peripherals. Plus, you have the flexibility to plug and unplug peripherals without restarting your computer.

Introducing Five More Ways to Get Attached to Your iMac™.

USB is a fast and flexible new way of connecting peripherals to your computer, and soon it will be the standard for all Macs. With a data transfer rate of up to 12 megabits per second, it runs circles around ADB and LocalTalk®. So, take advantage of all the benefits from your iMac and order Newer Technology's USB peripherals.

newertechnology™

To learn how to get the most from your iMac, visit us at www.newertech.com

Newer is a registered trademark of Newer Technology, Inc. The uDrive, uHub, uSCSI, and uFlash are trademarks of Newer Technology. All other product names are trademarks or registered trademarks of their respective holders. No part of this document may be reproduced mechanically, electronically or by any other means without the express written permission of Newer Technology, Inc. All rights reserved. Features and specifications subject to change without notice.

HOW'S YOUR SEARCH FOR MAC ACCESSORIES GOING?

Kensington, Mouse-in-a-Box, Turbo Mouse and Macessories are registered trademarks and Orbit and Keyboard-in-a-Box are trademarks of ACCO World Corporation. All other registered and unregistered trademarks are the property of their respective owners. Kensington sells input devices that are compatible with Apple's Macintosh computers. ©1998 Kensington Technology Group, a division of ACCO Brands, Inc.

Hey, we know the places you can buy Macs and Mac stuff aren't exactly popping up like Starbucks these days. But we've got you covered. With high performance accessories like our TurboMouse® and Orbit™ trackballs, easy-to-use Mouse•in•a•Box®, and 2-and 4-button mice. And now there's our hot new Keyboard•in•a•Box™. You see, we've been making Apple products since 1981. And we're going to keep right on making them, until the Feds shut down Microsoft and Apple regains its rightful place as the king, the sovereign monarch, the mighty potentate of the cyberuniverse. Until then, check out the Maccessories® at www.kensington.com.

KENSINGTON

Smart design at work.

Choose 1 at www.macworld.com/getinfo